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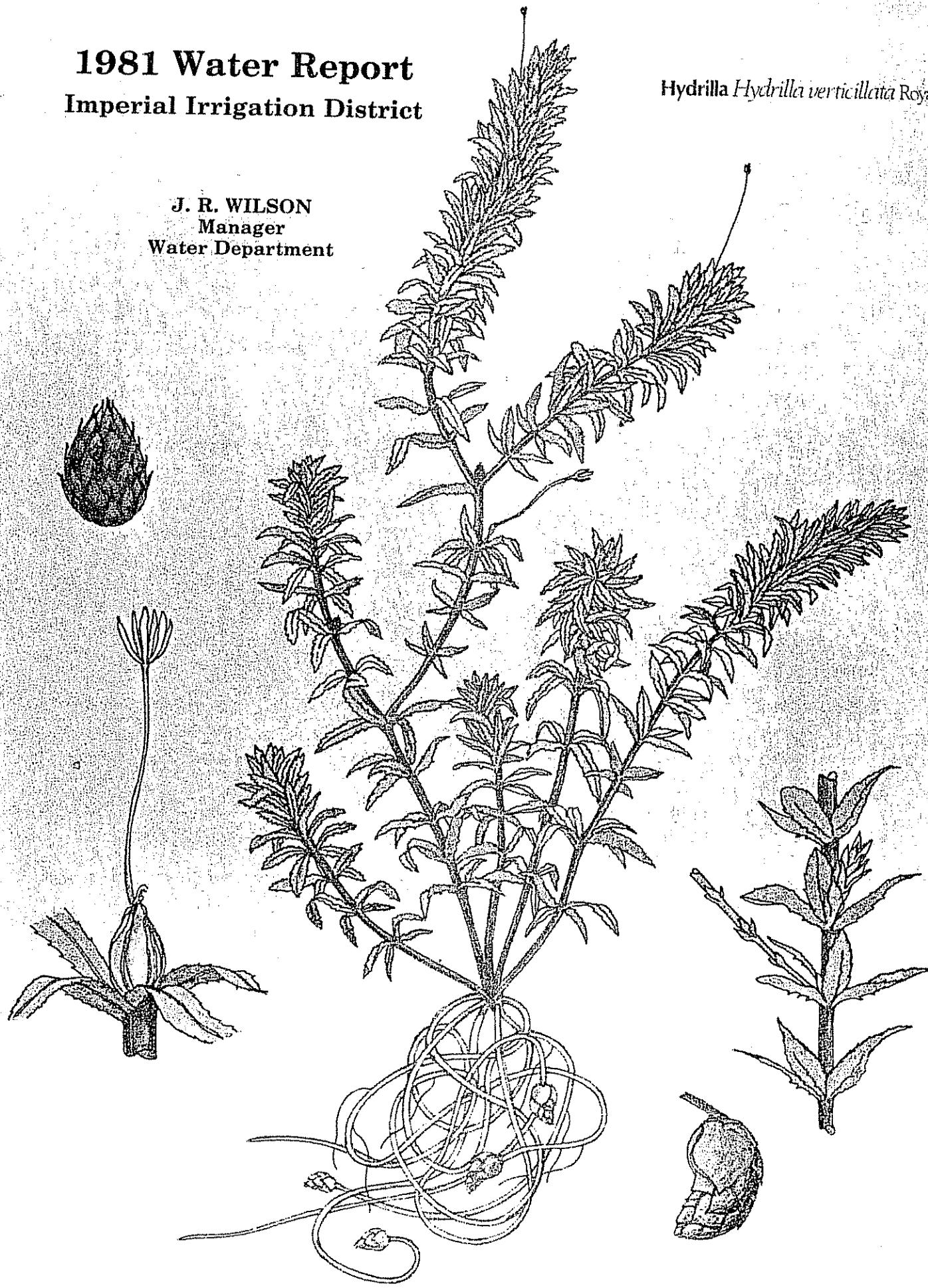
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1981 Water Report

Imperial Irrigation District

J. R. WILSON
Manager
Water Department

Hydrilla *Hydrilla verticillata* Royal



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WATER DEPARTMENT
OPERATIONS AND ORGANIZATION

Water is diverted from the Colorado River at Imperial Dam through the District's All-American Canal headworks and desilting basins, thence into the All-American Canal for transporting to Imperial, Yuma and Coachella Valleys. Yuma Project water is diverted from the All-American Canal at Siphon Drop. Coachella Valley Water District water is diverted at Drop No. 1 to the Coachella Branch of the All-American Canal. All water passing below Drop No. 1 in the All-American Canal is for use by Imperial Irrigation District.

The District's gravity-flow canal and drainage system serves an area of 507,325 acres of irrigated farm land. The total gross area within the District's boundaries is 1,062,290 acres, including undeveloped area; cities, towns, airports, feed lots, etc., area below the -230 contour Salton Sea Reserve Boundary and area covered by Salton Sea; and area in canals, drains, rivers and railroads.

Water Department's responsibilities include operation and maintenance of the All-American Canal headworks and desilting basins at Imperial Dam, 80 miles of All-American Canal, 3 miles of New Briar Canal, a 1,625-mile network of other main canals and laterals, 52 miles of drains in All-American Canal Section and 1,402 miles of main and lateral drains. Due to the concrete lining of the Coachella Branch of the All-American Canal in 1980, the Coachella Valley Water District now operates and maintains this 49-mile section.

Water conveyed in the District's canal system serves agricultural, industrial and domestic purposes. All cities and towns in Imperial Valley receive raw water supplied from District canals.

Department organization includes Irrigation and Drainage Sections, All-American Canal Section, Water Control Section, Civil Engineering Section, Drainage Construction and Maintenance Section and Heavy Equipment Operations Section.

Number of Employees in Water Department - December 31, 1981

Water Administration	6
Hydrilla Control Research	3
Water Conservation	4
Water Engineering	26
Water Control	63
Heavy Equipment Operators Pool	62
Drainage Construction, Maintenance and Design	40
Irrigation and Drainage Sections	209
All-American Canal	37
Total	450

Soil Conservation Service District

The local Soil Conservation Service District operates under a memorandum of understanding between the District and the U.S. Department of Agriculture, and a close liaison is maintained between the agencies. Engineering information produced by one agency is available to the other organization.

The Imperial Irrigation District Board of Directors also serves as Directors for the Soil Conservation Service District and sets policy for the Soil Conservation Service operations in Imperial Valley.

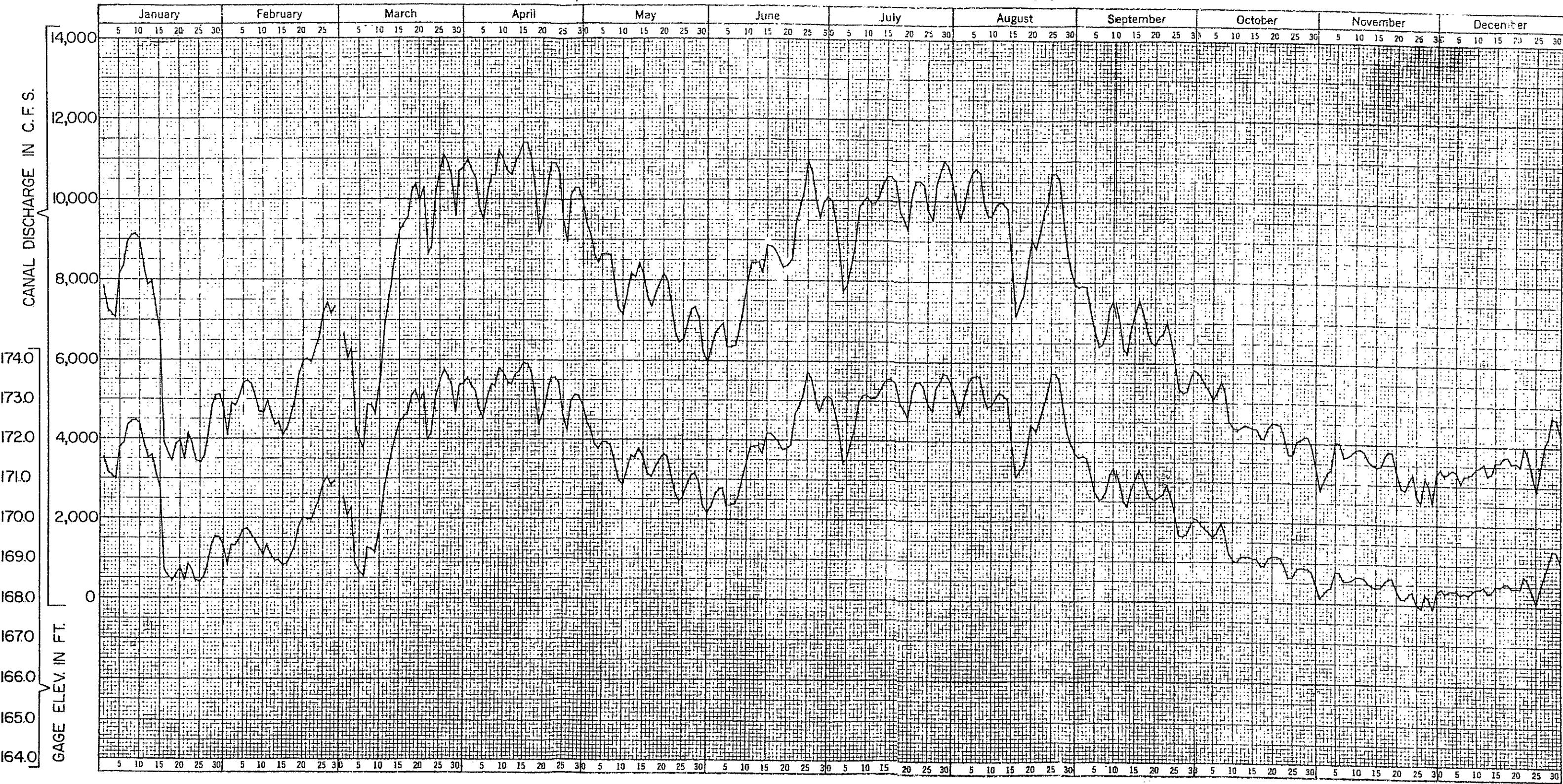
Cars and Trucks Assigned to Water Department Sections, Units and Divisions

Manager, Water Department	1
Assistant Manager, Water Department	1
Hydrilla Research Project	2
Water Conservation	4
Engineering Section	4
Engineering - Boat Trailer	1
Water Control Section	35
Drainage Construction	32
Drainage Construction - Utility Flatbed Trailers	3
Equipment Operations	44
Equipment Operations - Flatbed Trailer	1
Equipment Operations - Pull Trailer	1
River Division	11
River Division - Dump Truck	1
River Division - Tiltbed Trailer	1
River Division - Boat Trailer	1
Western Division	11
Western Division - Boat Trailer	1
Western Division - Pump Trailer	1
Western Division - Trailer (Debris removal)	1
Western Division - Flatbed Trailer	1
Western Division - Tiltbed Trailer	1
Superintendent, General, Irrigation & Drainage	1
Holtville Division	24
Holtville Division - Tiltbed Trailer	1
El Centro-Calexico Division	25
El Centro-Calexico Division - Trailer	2
Imperial Division	21
Brawley Division	22
Westmorland Division	23
Westmorland Division - Tiltbed Trailer	1
Calipatria Division	21

Heavy Equipment Assigned to the Water Department

Draglines	6
Motor Cranes	4
38-B Dragline	1
Hydraulic Excavators	5
Hydraulic Excavator - Crawler Mounted	2
Angledozers	12
Motor Graders	3
Backhoes	8
Skiploader	1
Sprinkler Trucks	5
Lube Trucks	2
Wheel Tractors	13
Dump Trucks	7
Boom Trucks	10
Scraper	1

ALL AMERICAN CANAL AT STATION 60 - 1981



IMPERIAL IRRIGATION DISTRICT
IMPERIAL COUNTY, CALIFORNIA
DRAINAGE SYSTEM

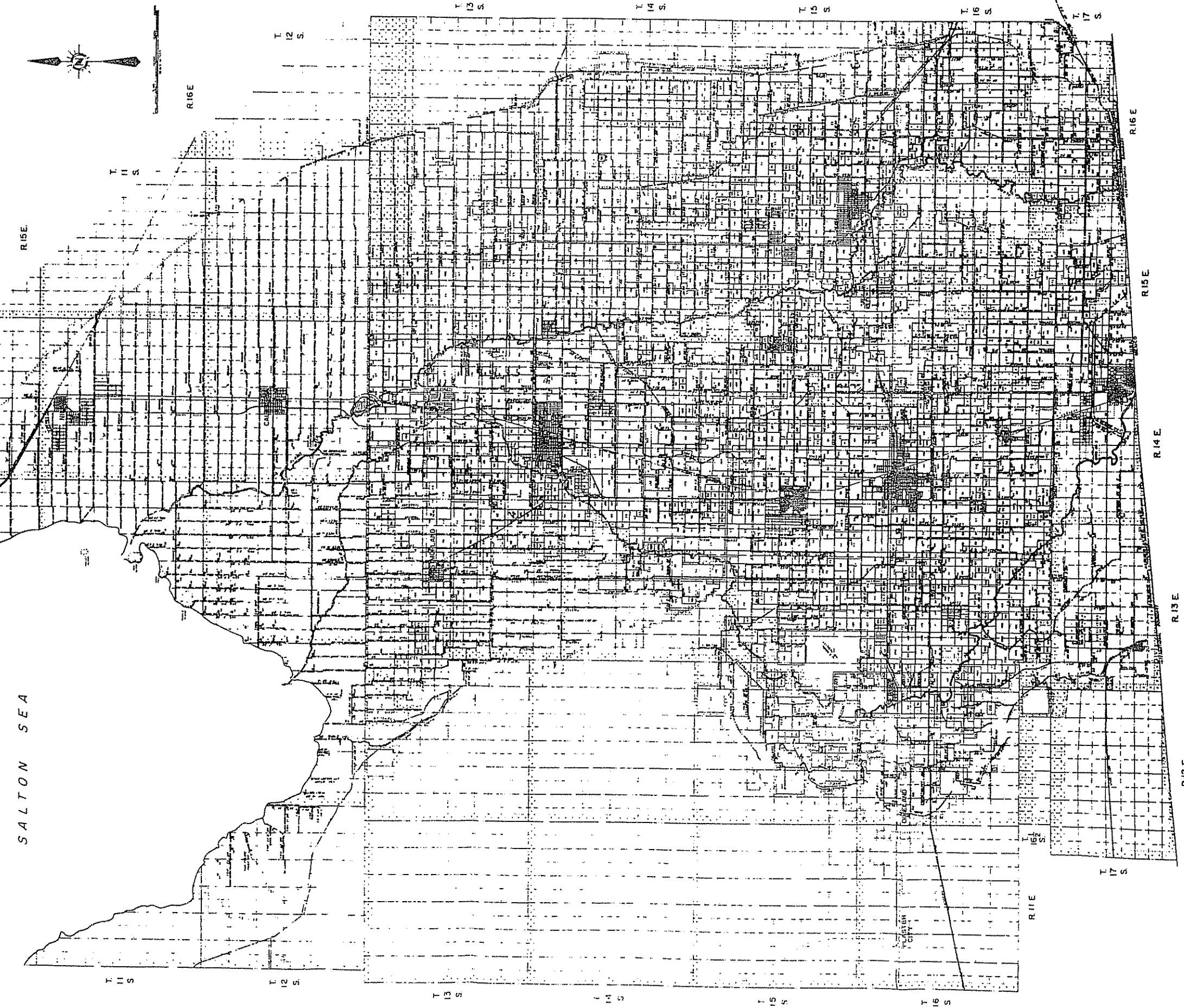
IMPERIAL UNIT

JANUARY, 1979

D.A. TYDODD

GENERAL MANAGER

LEGEND	
HOSES	OPEN LINE BOUNDARY
VALVES	TRANSIENT & STATION LINES
METERS	SECTION LINES
BEAMS	TRACT LINES
LATERAL DRILLS	LOT LINES
COPPER PVC LINES	TRACT NUMBER
THE GARDEN RISE	LOT NUMBER
CONCRETE LINES	TRACT NUMBER
ROOF DRAINS	LOT NUMBER
SALTON SEA PUMPS	TRACT NUMBER
DEF. WALLS & GATE OUTLET PLATES	TRACT NUMBER



IMPERIAL IRRIGATION DISTRICT
IMPERIAL COUNTY CALIFORNIA
IRRIGATION SYSTEM

DALE TWOGOOD
Drawing No. 0005

IMPERIAL UNIT

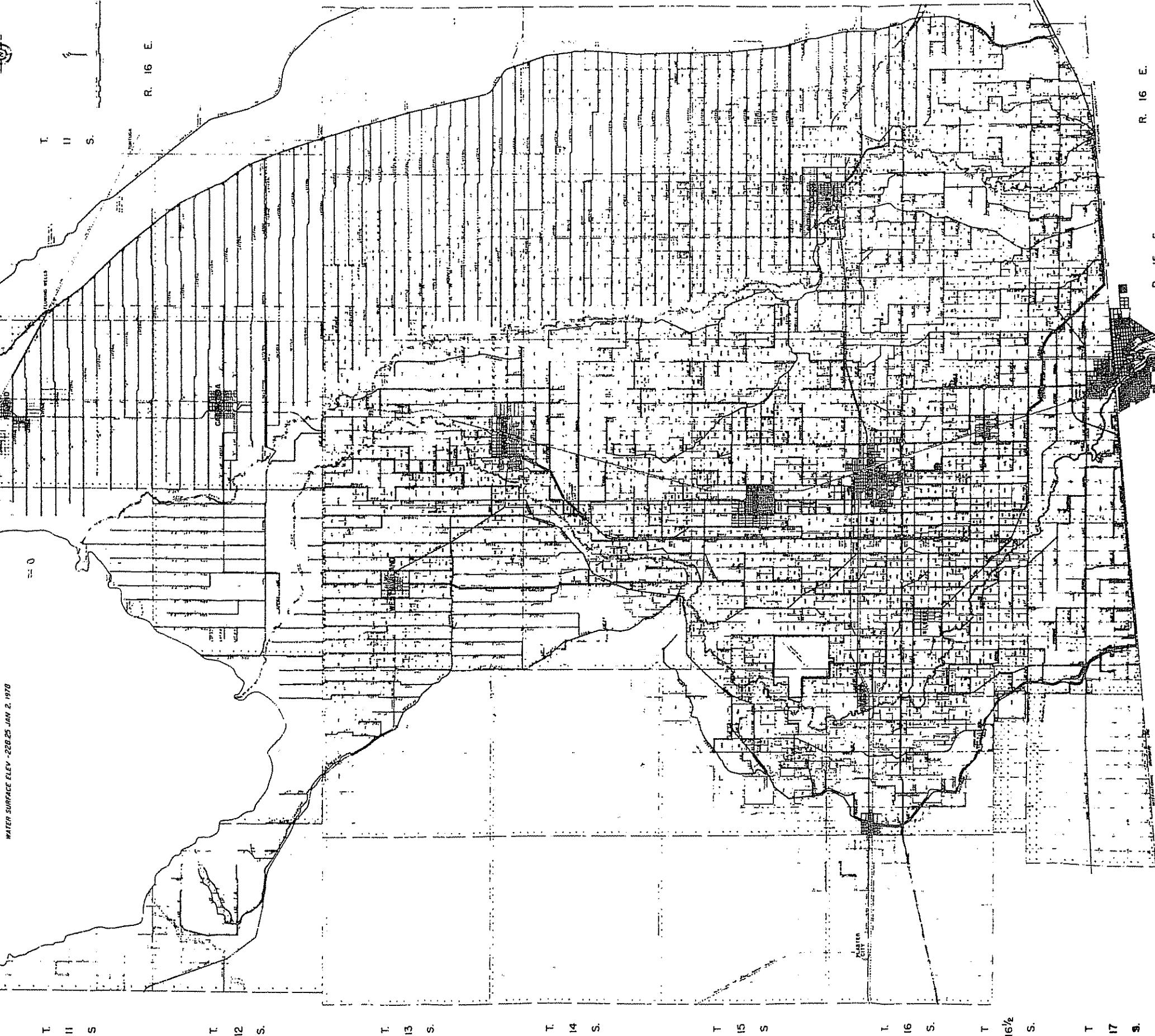
JANUARY 1976

LEGEND

- CANALS & LATERALS
- PUMP CHANNELS
- STRUCTURES
- SPRINGS & CREEKS
- BRIDGES
- ROADS
- RAILROADS
- CONCRETE LATERALS
- IRON LATERALS
- SOIL LINES
- SECTION BOUNDARIES
- LOT NUMBER
- STREET NAMES
- LOT NUMBERS

SALTON SEA

WATER SURFACE ELEV -228.25 JAN 2, 1976



**MAPS OF
IRRIGATION AND DRAINAGE SYSTEMS**

**GROSS ACREAGE, CANAL AND DRAIN MILEAGE
AND INVENTORY OF STRUCTURES**

GROSS ACREAGE OF IMPERIAL IRRIGATION DISTRICT
WITHIN THE A.A.C. SERVICE AREA BOUNDARIES

1. Imperial Unit

Acreage Included in Imperial Unit as of 12-31-81	626 614
Included August 10, 1967, (No Water Rights)	<u>63 933</u>
 Total Acreage Included in Imperial Unit	 690 547
 Acreage Within Imperial Unit not Included	 3 874
 Total Gross Acreage - Imperial Unit	 694 421

2. East Mesa Unit

Acreage Included in East Mesa Unit as of 12-31-81	201 916
Acreage Within East Mesa Unit not Included	<u>18 727</u>
 Total Gross Acreage - East Mesa Unit	 220 643

3. West Mesa Unit

Acreage Included in West Mesa Unit as of 12-31-81	67 146
Acreage Within West Mesa Unit not Included	<u>59 130</u>
 Total Gross Acreage - West Mesa Unit	 126 276

4. Pilot Knob Unit

Acreage Included in Pilot Knob Unit as of 12-31-81	15 478
Acreage Within Pilot Knob Unit not Included	<u>5 472</u>
 Total Gross Acreage - Pilot Knob Unit	 20 950

Total	1 062 290
-------	-----------

Total Acreage Included - All Units	975 087
------------------------------------	---------

Total Acreage not Included - All Units	<u>87 203</u>
----------------------------------------	---------------

TOTAL GROSS ACREAGE WITHIN A.A.C. SERVICE
AREA BOUNDARIES

1 062 290

SALTON SEA AREA

The approximate area covered by that portion of Salton Sea lying within the boundary of the I.I.D. on 12-31-81	102 990 Acres
-------------------------------------------------------------------------------------------------------------------	---------------

The approximate area within the IID boundaries lying above the December 31, 1981, shore line of Salton Sea and below the -230 Salton Sea Reserve Boundary	2 410 Acres
-----------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------

CANAL AND DRAIN MILEAGE AS OF DECEMBER 31, 1981

	<u>Total Miles</u>	<u>Miles Earth Section</u>	<u>Miles Concrete Lined</u>	<u>Miles Pipelined</u>
All-American Canal - Canals	82.17	79.57	2.60	0.00
All-American Canal - Drains	51.64	37.51	0.00	14.13
Main Canals	153.31	144.52	8.79	0.00
Lateral Canals	1 472.06	686.55	776.72	8.79
Drains	1 401.53	1 303.27	0.40	<u>97.86</u>
Totals	3 160.71	2 251.42	788.51	120.78

MAIN CANAL MILEAGE AS OF DECEMBER 31, 1981
BY DIVISIONS

Divisions	Total Miles	Miles Earth		Miles Concrete		% Concrete Lined	Miles Pipelined	% Pipelined
		Miles Section	% Earth Section	Miles Lined	Concrete			
Holtville	16.60	16.60	100.00	0	0	0	0	0
El Centro-Calexico	37.03	32.83	88.66	4.20	11.34	0	0	0
Imperial	27.00	27.00	100.00	0	0	0	0	0
Brawley	12.94	12.94	100.00	0	0	0	0	0
Westmorland	19.20	19.20	100.00	0	0	0	0	0
Calipatria	40.54	35.95	88.68	4.59	11.32	0	0	0
Division Totals	153.31	144.52	94.27	8.79	5.73	0	0	0
All-American Canal	82.17	79.57	96.84	2.60	3.16	0	0	0
Grand Total	235.48	224.09	95.16	11.39	4.84	0	0	0

LATERAL CANAL MILEAGE AS OF DECEMBER 31, 1981
BY DIVISIONS

<u>Divisions</u>	<u>Total Miles</u>	<u>Miles Earth Section</u>	<u>% Earth Section</u>	<u>Miles Concrete Lined</u>	<u>% Concrete Lined</u>	<u>Miles Pipelined</u>	<u>% Pipelined</u>
Holtville	294.97	78.54	26.63	216.07	73.25	0.36	0.12
El Centro-Calexico	229.47	119.23	51.96	109.74	47.82	0.50	0.22
Imperial	203.16	84.16	41.43	117.96	58.06	1.04	0.51
Brawley	244.01	130.50	53.48	107.57	44.08	5.94	2.44
Westmorland	199.22	70.83	35.55	128.39	64.45	0.00	0.00
Calipatria	<u>301.23</u>	<u>203.29</u>	<u>67.49</u>	<u>96.99</u>	<u>32.20</u>	<u>0.95</u>	<u>0.31</u>
Totals	1 472.06	686.55	46.64	776.72	52.76	8.79	0.60

DRAIN MILEAGE AS OF DECEMBER 31, 1981
BY DIVISIONS

<u>Divisions</u>	<u>Total Miles</u>	<u>Miles Earth Section</u>	<u>% Earth Section</u>	<u>Miles Concrete Lined</u>	<u>% Concrete Lined</u>	<u>Miles Pipelined</u>	<u>% Pipelined</u>
Holtville	117.33	98.15	83.65	0.40	0.35	18.78	16.00
El Centro-Calexico	79.83	73.07	91.53	0.00	0.00	6.76	8.47
Imperial	71.05	66.06	92.98	0.00	0.00	4.99	7.02
Brawley	219.23	216.92	98.95	0.00	0.00	2.31	1.05
Westmorland	135.58	133.31	98.33	0.00	0.00	2.27	1.67
Calipatria	<u>282.27</u>	<u>262.31</u>	<u>92.93</u>	<u>0.00</u>	<u>0.00</u>	<u>19.96</u>	<u>7.07</u>
Division Totals	905.29	849.82	93.87	0.40	0.05	55.07	6.08
Drainage	496.24	453.45	91.38	0.00	0.00	42.79	8.62
All-American	<u>51.64</u>	<u>37.51</u>	<u>72.64</u>	<u>0.00</u>	<u>0.00</u>	<u>14.13</u>	<u>27.36</u>
Grand Total	1 453.17	1 340.78	92.27	0.40	0.03	111.99	7.70

INVENTORY OF STRUCTURES
December 31, 1981

Main Canals - Divisions	Concrete	Rubble	Wood	Others	Total
Deliveries	192	13	2	-	207
Checks	57	2	-	-	59
Lateral Headings	134	8	-	-	142
Control Structures	97	4	1	-	102
Bridges	5	-	22	4	31
Siphons	24	1	-	-	25
Moss Pipes	5	-	-	2	7
Storm Spillways	4	4	-	-	8
Flumes	-	-	-	1	1
Total Divisions	518	32	25	7	582
All-American Canal	145	-	-	-	145
Total Main Canals	663	32	25	7	727
<u>Lateral Canals - Divisions</u>					
Deliveries	5 215	127	27	-	5 369
Checks	3 164	163	20	-	3 347
Lateral Headings	326	24	1	-	351
Control Structures	702	49	19	2	772
Bridges	28	4	28	1	61
Siphons	126	2	-	4	132
Moss Pipes	121	-	5	1	127
Flumes	1	-	-	-	1
Storm Spillways	32	4	-	-	36
Total Lateral Canals	9 715	373	100	8	10 196
<u>Drains</u>					
Control Structures	410	9	12	2	433
Bridges	2	-	33	-	35
Siphons	1 304	11	5	39	1 359
Flumes	3	-	35	1	39
Outlets	214	-	-	-	214
Spillways	21	-	-	-	21
Maintenance Crossings	350	-	-	-	350
Deliveries - Pump	2	-	-	-	2
Deliveries	4	-	-	-	4
Checks	1	-	-	-	1
Total Drains	2 311	20	85	42	2 458

LOCATION OF CONTROL DROPS IN ALAMO AND NEW RIVERS

LOCATION OF CONTROL DROPS IN ALAMO RIVER

Alamo River Drop No. 2, near the center of the N. E. 1/4 of Section 12, 12-13, was installed in 1959.

Alamo River Drop No. 3, in the northwest corner of Section 29, 12-14, was installed in 1960.

Alamo River Drop No. 3-A, is located immediately east of the existing North End Dam, in the northwest corner of Section 29, 12-14, and was installed in 1967.

Alamo River Drop No. 4, is located immediately west of railroad bridge, near the east line of Tract 170, Section 3, 13-14, and was installed in 1966.

Alamo River Drop No. 5, in the northwest corner of Tract 180, Section 12, 13-14, was installed in 1960.

Alamo River Drop No. 6, in the southwest corner of Section 30, 13-15, was installed in 1961.

Alamo River Drop No. 6-A, in the southeast corner of Tract 155, Section 18, 14-15, was installed in 1974.

Alamo River Drop No. 7, near the center of Tract 55, Section 30, 14-15, was installed in 1958.

Alamo River Drop No. 8, at the center of E. 1/2 of S. W. 1/4 of Section 5, 15-15, was installed in 1958.

Alamo River Drop No. 9, in the S. E. 1/4 of N. E. 1/4, of Section 20, 15-15, was installed in 1958.

Alamo River Drop No. 10, on the west line of Lot 20, Section 21, 15-15, was installed in 1958.

Alamo River Drop No. 12, in Tract 72, Section 26, 15-15, was installed in 1967.

Alamo River Drop No. 13, in the southwest corner of Tract 65, Section 36, 15-15, was installed in 1967.

LOCATION OF CONTROL DROPS IN NEW RIVER

New River Drop No. 2, in the center of Tract 139, Section 9, 13-14, was installed in 1973.

New River Drop No. 3, in the northwest corner of Tract 92, Section 21, 13-14, was installed in 1964.

New River Drop No. 4, near the west line of Lot 4, Section 32, 13-14, was installed in 1965.

**WATER DISTRIBUTION AND
QUALITY ANALYSIS REPORTS**

IMPERIAL IRRIGATION DISTRICT

ANNUAL SUMMARY
WATER DIVERSION, TRANSPORTATION, DISTRIBUTION AND DRAINAGE
UNITED STATES AND MEXICO

YEARS OF 1981 AND 1980

WATER DIVERSION

<u>GOLORADO RIVER:</u>	<u>1981</u>	<u>1980</u>	
<u>Grand Canyon:</u>			
Discharge - Year	7 842 900	11 556 100	A.F.
<u>Hoover Dam:</u>			
Reservoir Elevation - Dec. 31	1198.28	1202.88	Feet
Maximum Reservoir Elevation	1204.74	1205.03	Feet
Available Storage - Dec. 31	22 668 000	23 336 000	A.F.
Maximum Available Storage	23 610 000 (2-16)	23 653 000 (9-21)	A.F.
Loss in Storage - Year	668 000	(G) 713 000	A.F.
Daily Discharge - Maximum	23 000 (4-3)	35 600 (6-29)	C.F.S.
- Minimum	1 610 (11-22)	1 400 (1-14)	C.F.S.
- Mean	11 442	15 272	C.F.S.
Discharge - Year	8 284 000	11 086 800	A.F.
<u>Davis Dam:</u>			
Storage - Dec. 31	1 577 000	1 596 000	A.F.
Loss in Storage - Year	19 000	38 000	A.F.
Daily Discharge - Maximum	20 900 (8-1)	25 300 (6-28)	C.F.S.
- Minimum	2 730 (1-14)	1 980 (2-17)	C.F.S.
- Mean	11 597	15 492	C.F.S.
Discharge - Year	8 395 700	11 246 600	A.F.
<u>Parker Dam:</u>			
Storage - Dec. 31	542 700	570 500	A.F.
Loss in Storage	27 800	(G) 18 800	A.F.
Daily Discharge - Maximum	17 700 (7-26)	22 200 (6-23)	C.F.S.
- Minimum	1 860 (11-29)	2 210 (1-5)	C.F.S.
- Mean	10 035	14 745	C.F.S.
Discharge - Year	7 265 000	10 704 000	A.F.
<u>Imperial Dam:</u>			
Diversions - All-American Canal	5 051 200	7 694 790	A.F.
- Gila Main	836 550	713 940	A.F.
Passing Imperial Dam	371 930	1 018 700	A.F.
Discharge - Year	6 259 680	9 427 430	A.F.
<u>Yuma - Below Yuma Main Spill:</u>			
Daily Discharge - Maximum	3 050 (1-15)	6 570 (5-2)	C.F.S.
- Minimum	479 (11-2)	1 020 (2-11)	C.F.S.
- Mean	966	4 103	C.F.S.
Discharge - Year	699 520	2 978 300	A.F.
<u>Morelos Dam:</u>			
Diversions to Alamo Canal	1 684 409	2 735 390	A.F.

(G) Gain

WATER TRANSPORTATION

	<u>1981</u>	<u>1980</u>	
<u>All-American Canal:</u>			
*Received at Head	5 051 200	7 694 790	A.F.
*Diversions above Siphon Drop	72 963	70 789	A.F.
*Diversions at Siphon Drop	450 988	336 945	A.F.
<u>Pilot Knob Power Plant:</u>			
*Y.C.W.U.A. Transfer	610 148	1 022 300	A.F.
*Imperial Irrigation District	552 044	2 810 587	A.F.
*Total Diversion to Power Plant	1 163 999	3 833 066	A.F.
*Diversion to Pilot Knob Spillway	1 807	179	A.F.
<u>Discharge Below Pilot Knob</u>			
For C.V.W.D.	447 219	526 255	A.F.
For Imperial Irrigation District	2 839 495	2 817 121	A.F.
Total	3 286 714	3 343 376	A.F.
Loss - Imperial Dam to Pilot Knob	76 536	110 614	A.F.
<u>Loss - Pilot Knob to Drop No. 1</u>			
For C.V.W.D.	11 878	9 701	A.F.
For Imperial Irrigation District	70 383	47 626	A.F.
Total	82 261	57 327	A.F.
Diversion to Coachella Canal	435 341	516 554	A.F.
Discharge below Drop No. 1	2 769 112	2 769 495	A.F.
Daily Discharge below Drop No. 1			
- Maximum	6 350 (4-15)	6 331 (4-18)	C.F.S.
- Minimum	702 (1-13)	300 (2-21)	C.F.S.
- Mean	3 825	3 815	C.F.S.
Diversions above E.H.L. Check	1 213 310	1 183 510	A.F.
Discharge below E.H.L. Check	1 532 353	1 551 994	A.F.
Loss - Drop No. 1 to E.H.L. Check	23 449	33 991	A.F.
Diversions E.H.L. to W.S.M. Check	1 511 290	1 522 040	A.F.
Loss - E.H.L. to W.S.M. Check	21 063	29 954	A.F.
Loss - Pilot Knob to W.S.M. Check	114 895	111 571	A.F.

*Daily report from All-American Canal, River Division

WATER DISTRIBUTION

UNITED STATES:

1. Main All-American Canal:

Division	A C R E F E E T							
	Net Received		Operational Loss		Deliveries To Users		Canal Loss and Unaccounted for	
	1981	1980	1981	1980	1981	1980	1981	1980
	A	B	C	D				
East Mesa	15 003	5 109			15 003	5 109		
Holtville	553 409	553 756	6	40	528 669	525 110	24 734	28 606
Calexico & El Centro	447 348	450 053	8	14	439 150	442 274	8 190	7 765
Imperial	397 170	408 953		20	373 953	382 753	23 217	26 180
Brawley	415 764	423 439			384 263	391 126	31 501	32 313
Westmorland	371 639	378 848	3 273	4 471	356 319	363 030	12 047	11 347
Calipatria	414 045	422 871			402 404	410 293	11 641	12 578
Total	2 614 378	2 643 029	3 287	4 545	2 499 761	2 519 695	111 330	118 789
% of Net Received	100.00	100.00	0.13	0.17	95.61	95.33	4.26	4.50

1981 1980

2. Main Canal Operational Loss:

All-American Canal - Alamo Spillway			A.F.
- New River Spillway	255	213	A.F.
Dahlia Spillway	302	258	A.F.
No. 4 Spillway	1 789	2 633	A.F.
Dixie Spillway	169	141	A.F.
Vail Spillway - New River	45	149	A.F.
Vail Supply to Alamo - Above North End Dam	715	824	A.F.
Rositas- at Rose Heading	341	224	A.F.
East Highline at "Z" Spillway	2 770	3 246	A.F.
Total	6 386	7 688	A.F.

3. Operational Loss Recovered:

A. From Main Canals			A.F.
B. From Divisions - Rositas	3 124	3 588	A.F.
C. From Divisions - Vail	575	516	A.F.

WATER DISTRIBUTION (Cont.)

	1981		1980	
	Acre-Feet	% Colo. at Imp. Dam	Acre-Feet	% Colo. at Imp. Dam
4. Discharge below Pilot Knob (I.I.D.)	2 839 495	45.36	2 817 121	29.88
		<u>% Disch. Below Pilot Knob</u>		<u>% Disch. Below Pilot Knob</u>
5. Net Operational Loss from Divisions (Item 1B minus 3A and 3B)	(412)	(0.01)	441	0.02
6. Net Operational Loss from Main Canals (Item 2)	6 386	0.23	7 688	0.27
7. Net Deliveries from Main Canals (Item 1A minus 3A and 3B)	2 610 679	91.94	2 638 925	93.68
8. Total Diversions from Main Canals (Item 6 plus 7)	2 617 065	92.17	2 646 613	93.95
9. Total Canal Loss and Unaccounted for - Main Canals (Item 4 minus 8)	222 430	7.83	170 508	6.05
10. Total Canal Loss and Unaccounted for - Entire System (Item 1D plus 9)	333 760	11.75	289 297	10.27
11. Total Deliveries to Users (Item 1C)	2 499 761	88.03	2 519 695	89.44

(G) Gain

Note: "Unaccounted for" represents, in part, water delivered through approximately 1,787 service pipes which are unmeasured.

INFLOW TO SALTON SEA

	<u>1981</u>	<u>1980</u>	
<u>Alamo Channel:</u>			
*Crossing Line from Mexico	2 274	1 655	A.F.
Main Canal Operational Loss	1 056	1 048	A.F.
Division Operational Loss	(G) 3 685	(G) 4 052	A.F.
Drainage	591 946	642 930	A.F.
Metered at Outlet	591 591	641 581	A.F.
<u>New River Channel:</u>			
*Crossing Line from Mexico	155 443	156 320	A.F.
Main Canal Operational Loss	2 560	3 394	A.F.
Division Operational Loss		22	A.F.
Drainage	275 238	294 808	A.F.
Metered at Outlet	433 241	454 544	A.F.
<u>Direct to Sea:</u>			
Main Canal Operational Loss	2 770	3 246	A.F.
Division Operational Loss	3 273	4 471	A.F.
Drainage	89 767	97 374	A.F.
Total	95 810	105 091	A.F.
<u>Summary:</u>			
*Crossing Line from Mexico	157 717	157 975	A.F.
Main Canal Operational Loss	6 386	7 688	A.F.
Division Operational Loss	(G) 412	441	A.F.
Drainage	956 951	1 035 112	A.F.
Total to Sea	1 120 642	1 201 216	A.F.

ELEVATION OF THE SALTON SEA:

December 31, 1981
-227.40

December 31, 1980
-227.25

(G) Gain

*Computed from Meter Stations at the Boundary.

TONS OF SEDIMENT REMOVED BY DESILTING BASINS AT IMPERIAL DAM

<u>Year</u>	<u>Sediment</u>	<u>High Month</u>	<u>Total Tons</u>	<u>Low Month</u>	<u>Total Tons</u>
1961	196 553	July	58 635	December	144
1962	337 927	July	81 120	December	338
1963	515 033	July	100 802	December	551
1964	392 573	July	120 565	December	331
1965	433 468	August	143 109	January	439
1966	542 921	July	180 225	January	455
1967	318 777	August	92 033	December	259
1968	459 410	March	130 290	December	481
1969	467 052	April	98 337	December	264
1970	445 798	April	180 957	November	858
1971	441 146	April	122 157	January	1 088
1972	439 086	April	138 713	December	1 351
1973	481 774	April	181 326	February	1 169
1974	626 447	April	201 486	January	1 103
1975	470 161	April	132 456	November	994
1976	556 506	April	199 599	January	1 276
1977	530 026	July	150 466	December	1 651
1978	522 696	July	154 504	January	461
1979	646 766	July	201 383	January	176
1980	3 535 757*	July	1 331 953*	January	1 436
1981	455 671	August	145 520	October	75

*Caused by extreme high river release

PERCENT OF WATER RECEIVED AT PILOT KNOB CHECK
DELIVERED TO USERS - ACRE-FEET

<u>Year</u>	<u>Acre-Feet Received at Pilot Knob Check</u>	<u>Acre-Feet Delivered to Users</u>	<u>Percent Delivered to Users</u>
1965	2 688 158	2 311 966	86.01
1966	2 886 364	2 470 268	85.58
1967	2 769 592	2 365 379	85.41
1968	2 864 151	2 475 825	86.44
1969	2 714 487	2 351 578	86.63
1970	2 807 817	2 418 439	86.13
1971	2 938 783	2 534 599	86.25
1972	2 903 491	2 531 343	87.18
1973	3 008 661	2 670 313	88.75
1974	3 133 038	2 777 221	88.64
1975	3 046 890	2 703 706	88.74
1976	2 831 443	2 515 265	88.83
1977	2 717 201	2 454 750	90.34
1978	2 714 988	2 440 701	89.90
1979	2 843 730	2 570 856	90.40
1980	2 817 121	2 519 695	89.44
1981	2 839 495	2 499 761	88.04

IMPERIAL IRRIGATION DISTRICT
ALL-AMERICAN CANAL ANNUAL DISTRIBUTION IN ACRE-FEET

	<u>1981</u>	<u>1980</u>	<u>1979</u>
<u>Station 60 to Drop 1</u>			
<u>Discharge Station 60</u>			
IID	2 885 162	2 857 346	2 893 386
CVWD	454 557	533 968	533 193
Yuma	1 152 516	1 451 310	1 192 899
Pilot Knob (IID Power)	558 965	2 852 166	566 126
Total	<u>5 051 200</u>	<u>7 694 790</u>	<u>5 185 604</u>
<u>Diversions Station 60 to 1117</u>			
Bard	72 963	70 789	68 469
Siphon Drop and Walapai	450 988	336 945	352 602
<u>Pilot Knob</u>			
YCWUA	610 148	1 022 300	754 557
IID (Power)	552 044	2 810 587	559 072
Spillway	<u>1 807</u>	<u>179</u>	<u>72</u>
Total to River	1 163 999	3 833 066	1 313 701
<u>Loss Station 60 to 1117</u>			
IID	45 667	40 225	49 656
CVWD	7 338	7 713	9 808
Yuma	16 610	21 206	17 237
Pilot Knob (IID Power)	<u>6 921</u>	<u>41 470</u>	<u>7 016</u>
Total	<u>76 536</u>	<u>110 614</u>	<u>83 717</u>
<u>Discharge Station 1117</u>			
IID	2 839 495	2 817 121	2 843 730
CVWD	447 219	526 255	523 385
Total	<u>3 286 714</u>	<u>3 343 376</u>	<u>3 367 115</u>
<u>Loss Station 1117 to Drop 1</u>			
IID	70 383	47 626	40 564
CVWD	11 878	9 701	8 090
Total	<u>82 261</u>	<u>57 327</u>	<u>48 654</u>

	<u>1981</u>	<u>1980</u>	<u>1979</u>
<u>Drop 1 to Westside Main</u>			
Diversion Coachella Turnout	4 35 341	516 554	515 295
Discharge below Drop 1	2 769 112	2 769 495	2 803 166
Diversion Drop 1 to EHL Check	1 213 310	1 183 510	1 209 924
Loss Drop 1 to EHL Check	23 449	33 991	7 835
Discharge below EHL Check	1 532 353	1 551 994	1 585 407
Diversions EHL Check to CM			
Check	826 046	830 936	847 933
Loss EHL Check to CM Check	12 030	19 740	8 130
Discharge below CM Check	694 277	701 318	729 344
Diversion to CM Check to WSM Check	685 244	691 104	725 222
Loss CM Check to WSM Check	9 033	10 214	4 122
<u>Station 60 to Westside Main</u>			
Diversion Station 60 to WSM	4 847 891	7 462 904	5 033 146
Loss Station 60 to WSM	203 309	231 886	152 458
<u>Coachella Canal</u>			
Coachella at Head		495 676	515 295
Diversion 6-A Check		5 043	6 673
Loss - Head to 6-A Check			
TID	1 997		2 436
CVWD	123 522		131 863
Total		125 519	134 299
Discharge below 6-A Check		365 114	374 323

ANNUAL STATEMENT OF DISTRIBUTION OF WATER
BY DIVISIONS - ACRE-FEET
1981

<u>Division</u>	<u>Received from Main Canals</u>	<u>Percent</u>	<u>Canal Loss and Unaccounted for</u>	<u>Percent</u>	<u>Operational Loss</u>	<u>Percent</u>	<u>Delivered to Users</u>	<u>Percent</u>
Holtville	553 409	100.00	24 734	4.47	6	0.00	528 669	95.53
El Centro-Calexico	447 348	100.00	8 190	1.83	8	0.00	439 150	98.17
Imperial	397 170	100.00	23 217	5.85	-	0.00	373 953	94.15
Brawley	415 764	100.00	31 501	7.58	-	0.00	384 263	92.42
Westmorland	371 639	100.00	12 047	3.24	3 273	.88	356 319	95.88
Calipatria	<u>414 045</u>	<u>100.00</u>	<u>11 641</u>	<u>2.81</u>	<u>-</u>	<u>0.00</u>	<u>402 404</u>	<u>97.19</u>
Total Divisions	2 599 375	100.00	111 330	4.28	3 287	0.13	2 484 758	95.59
East Mesa (Experimental Farm)	<u>15 003</u>	<u>100.00</u>	<u>-</u>	<u>0.00</u>	<u>-</u>	<u>0.00</u>	<u>15 003</u>	<u>100.00</u>
TOTALS	2 643 378	100.00	111 330	4.25	3 287	0.13	2 499 761	95.62

Duty in Acre-Feet
Per Acre

5.40*

Note: *Water duty based on "Annual Inventory of Acres Receiving Water Service," Item "Net Area Irrigated," minus acres served from Coachella Canal

NUMBER WATER RUNS - ACRE-FEET OF WATER
DELIVERED TO USERS AND WATER SALES

<u>Year</u>	<u>No. Water Runs</u>	<u>Acre-Feet Water Delivered to Users</u>	<u>Water Sales</u>
1958	228 633	1 940 882	\$ 3 925 585
1959	239 368	2 045 454	3 901 284
1960	259 369	2 178 113	4 404 057
1961	251 272	2 195 675	4 142 451
1962	253 524	2 223 991	4 455 775
1963	250 522	2 284 666	4 614 879
1964	258 100	2 398 693	4 818 068
1965	255 070	2 311 966	4 637 441
1966	252 920	2 470 268	4 945 585
1967	227 223	2 365 379	5 061 640
1968	239 036	2 475 825	5 678 158
1969	229 034	2 351 578	5 401 789
1970	231 235	2 418 439	5 539 925
1971	241 376	2 534 599	5 798 557
1972	171 375	2 531 343	5 782 168
1973	249 218	2 670 313	6 071 659
1974	250 882	2 777 221	7 393 908
1975	238 821	2 703 706	8 494 593
1976	219 724	2 515 265	9 506 431
1977	217 709	2 454 750	11 228 752
1978	200 013	2 440 701	11 663 741
1979	208 620	2 570 856	13 176 853
1980	202 175	2 519 695	15 256 800
1981	201 334	2 499 761	17 750 415

<u>Town or City</u>	<u>1981 Water Delivered Acre-Feet</u>	<u>1981 Population</u>
Calexico	4 798.2	15 099
Holtville	1 864.0	4 579
El Centro	6 871.4	24 949
Imperial	1 946.8	3 576
Brawley	8 027.2	15 585
Westmorland	929.2	1 619
Calipatria	1 220.2	2 655
Niland	636.0	975
Seeley	342.0	1 010
Heber	<u>342.0</u>	<u>2 300</u>
Totals	26 977.0	72 347

Population figures from Imperial Irrigation District's Community and Special Services Section, March, 1982. Official Preliminary 1981 Census Results from County Planner.

TOTAL INFLOW TO SALTON SEA
ACRE-FEET

<u>Year</u>	<u>AAC Below Drop No. 1</u>	<u>Delivered to Users</u>	<u>Salton Sea from IID*</u>	<u>Inflow to Salton Sea from Mexico</u>	<u>Total Inflow to Salton Sea from IID & Mexico</u>	<u>Inflow to Salton Sea from Coachella</u>	<u>Total Inflow to Salton Sea from California</u>
1967	2 719 861	2 365 379	1 027 970	98 455	1 126 425	1/ 128 950	1 255 375
1968	2 806 124	2 475 825	1 001 027	107 488	1 108 515	1/ 135 670	1 244 185
1969	2 675 833	2 351 578	962 639	104 907	1 067 546	1/ 141 780	1 209 326
1970	2 754 898	2 418 439	1 020 503	101 316	1 121 819	1/ 129 720	1 251 539
1971	2 883 960	2 534 599	1 092 571	108 791	1 201 362	1/ 138 060	1 339 422
1972	2 846 613	2 531 343	1 063 537	112 600	1 176 137	1/ 148 020	1 324 157
1973	2 956 013	2 670 313	1 065 414	118 530	1 183 944	1/ 156 080	1 340 024
1974	3 072 327	2 777 221	1 123 492	113 066	1 236 558	1/ 151 680	1 388 238
1975	3 001 207	2 703 706	1 128 268	101 359	1 229 627	1/ 172 400	1 402 027
1976	2 783 630	2 515 265	1 084 993	103 959	1 188 952	1/ 189 820	1 378 772
1977	2 693 030	2 454 750	1 020 797	109 132	1 129 929	1/ 162 666	1 292 595
1978	2 671 798	2 440 701	995 674	99 704	1 095 378	1/ 149 788	1 245 166
1979	2 803 166	1 570 856	1 056 652	146 321	1 202 973	1/ 161 070	1 364 043
1980	2 769 495	2 519 695	1 043 241	157 975	1 201 216	2/ 143 958	1 345 174
1981	2 769 112	2 499 761	962 925	157 717	1 120 642	2/ 156 788	1 277 430

*Includes storm runoff
1/ Revised to conform to USGS Water Resources Data of California
2/ Preliminary data from CVWD

ALL-AMERICAN CANAL BELOW DROP NO. 1 AND ANNUAL INFLOW TO SALTON SEA
IN ACRE-FEET

YEAR	ALL-AMERICAN CANAL BELOW DROP NO. 1	INFLOW TO SALTON SEA				TOTAL TO SALTON SEA
		I.I.D. PORTION	% OF DROP NO. 1	FROM MEXICO	% OF TOTAL TO SALTON SEA	
1949	2 761 992	1 086 129	39.32	44 037	3.90	1 130 166
1950	2 938 666	1 104 800	37.60	38 385	3.36	1 143 185
1951	3 066 618	1 169 427	38.13	36 893	3.06	1 206 320
1952	3 203 411	1 260 573	39.35	37 167	2.86	1 297 740
1953	3 353 244	1 345 998	40.14	32 424	2.35	1 378 422
1954	3 095 783	1 273 210	41.13	30 936	2.37	1 304 146
1955	2 927 165	1 069 809	36.55	48 900	4.37	1 118 709
1956	2 906 746	1 091 804	37.56	78 174	6.68	1 169 978
1957	2 781 792	1 011 379	36.36	72 607	6.70	1 083 986
1958	2 730 876	974 045	35.67	105 974	9.81	1 080 019
1959	2 840 173	1 020 963	35.95	123 643	10.80	1 144 606
1960	2 983 860	1 059 804	35.52	123 233	10.42	1 183 037
1961	2 957 200	1 050 700	35.53	116 826	10.01	1 167 526
1962	2 951 266	1 088 965	36.90	133 884	10.95	1 222 849
1963	2 991 429	1 153 827	38.57	141 064	10.89	1 294 891
1964	2 770 474	905 153	32.67	106 921	10.56	1 012 074
1965	2 624 363	882 962	33.64	113 137	11.36	996 099
1966	2 817 912	1 004 685	35.65	104 503	9.42	1 109 188
1967	2 719 861	1 027 970	37.79	98 455	8.74	1 126 425
1968	2 806 124	1 001 027	35.67	107 488	9.70	1 108 515
1969	2 675 833	962 639	35.98	104 907	9.83	1 067 546
1970	2 754 898	1 020 503	37.04	101 316	9.03	1 121 819
1971	2 883 960	1 092 571	37.88	108 791	9.06	1 201 362
1972	2 846 613	1 063 537	37.36	112 600	9.57	1 176 137
1973	2 956 013	1 065 414	36.04	118 530	10.01	1 183 944
1974	3 072 327	1 123 492	36.57	113 066	9.14	1 236 558
1975	3 001 207	1 128 268	37.59	101 359	8.24	1 229 627
1976	2 783 630	1 084 993	38.98	103 959	8.74	1 188 952
1977	2 693 030	1 020 797	37.91	109 132	9.66	1 129 929
1978	2 671 798	995 674	37.27	99 704	9.10	1 095 378
1979	2 803 166	1 056 652	37.70	146 321	12.16	1 202 973
1980	2 769 495	1 043 241	37.67	157 975	13.15	1 201 216
1981	2 769 112	962 925	34.77	157 717	14.07	1 120 642

INFLOW TO SALTON SEA - I.I.D. PORTION
Percent of Drop No. 1

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
January	48.6	42.6	58.4	45.5	49.0	50.1	48.0	60.6	49.9	46.9	49.0	85.9	79.6	56.7	56.1
February	40.0	42.0	41.8	44.3	44.7	46.3	51.5	39.1	43.5	55.8	37.9	38.0	43.9	70.9	38.1
March	36.0	39.7	36.7	40.4	40.7	36.1	37.1	39.3	38.5	36.5	34.3	36.9	38.2	38.0	38.4
April	36.9	34.3	33.6	36.0	34.6	33.9	34.4	33.6	37.8	38.3	34.0	35.2	34.9	36.6	34.4
May	33.1	32.0	32.0	33.8	34.9	32.5	33.7	33.7	35.2	36.2	34.4	35.1	36.3	36.9	34.1
June	29.7	28.5	29.5	31.0	31.7	30.6	30.8	31.4	33.9	30.7	29.6	29.2	29.6	31.0	27.9
July	29.1	31.0	28.1	36.2	29.4	28.0	27.0	29.8	30.4	28.7	26.8	28.3	30.4	28.9	26.6
August	40.5	29.1	28.6	30.4	34.1	29.1	28.5	29.8	29.9	27.5	60.9	29.9	33.2	30.7	30.2
September	44.5	36.3	37.2	34.3	38.7	36.1	33.0	36.5	38.5	58.7	36.3	36.1	35.8	34.5	33.0
October	43.9	41.5	41.1	40.8	44.5	57.8	40.0	43.1	42.1	44.4	43.1	48.1	42.5	40.7	37.1
November	56.0	43.5	56.8	47.6	45.8	51.6	45.1	48.5	46.9	57.1	45.6	51.4	47.7	48.9	46.5
December	74.9	46.0	43.2	47.1	47.8	46.9	59.2	51.3	49.5	49.0	52.1	65.4	48.7	47.1	46.4
Yearly Average	38.1	36.2	36.4	37.3	38.6	37.7	36.7	37.0	38.4	39.3	38.1	37.5	37.9	37.9	35.2

SALINITY OF WATER BELOW DROP 1 ON ALL-AMERICAN CANAL

<u>Year</u>	<u>*Aver. t.a.f.</u>	<u>Total Tons (Millions)</u>	<u>Year</u>	<u>*Aver. t.a.f.</u>	<u>Total Tons (Millions)</u>
1952	0.95	3.0	1967	1.22	3.3
1953	0.98	3.3	1968	1.21	3.4
1954	1.01	3.1	1969	1.27	3.4
1955	1.17	3.4	1970	1.27	3.5
1956	1.27	3.7	1971	1.27	3.7
1957	1.22	3.4	1972	1.24	3.5
1958	1.00	2.7	1973	1.18	3.5
1959	1.00	2.9	1974	1.19	3.7
1960	1.06	3.2	1975	1.19	3.6
1961	1.13	3.3	1976	1.17	3.3
1962	1.15	3.4	1977	1.13	3.0
1963	1.13	3.4	1978	1.08	2.9
1964	1.19	3.3	1979	1.15	3.2
1965	1.30	3.4	1980	1.10	3.1
1966	1.30	3.7	1981	1.15	3.2

*Weighted Average, Salt Concentrations

SUMMARY OF SALT BALANCE
EXCLUDING WATER AND SALT FROM MEXICO

INFILUENT 1/

Year	Total A.F.	Tons of Salt Brought Into the Area		Weighted Average 2/ P.P.M.		Total Discharge		EFFLUENT		Tons of Salt Removed		Weighted Average 2/ P.P.M.		Tons Salt Diff.	Percent Loss or Gain
		1.00	735	1.00	735	1.00	735	T.A.F.	P.P.M.	T.A.F.	P.P.M.	T.A.F.	P.P.M.		
1958	2 730 876	2 723 153	1.00	735	1.00	974 045	3 341 376	3.43	2 521	618 223	22.70 gain				
1959	2 840 173	2 852 019	1.00	735	1.00	963	3 401 652	3.33	2 448	549 633	19.27 gain				
1960	2 983 860	3 162 485	1.06	779	1.059	804	3 558 534	3.36	2 470	396 049	12.52 gain				
1961	2 957 200	3 330 087	1.13	831	1.050	700	3 572 808	3.40	2 499	242 721	7.29 gain				
1962	2 951 266	3 399 464	1.15	845	1.088	965	3 806 946	3.50	2 573	407 482	11.99 gain				
1963	2 991 429	3 378 583	1.13	831	1.153	827	4 050 087	3.51	2 580	671 504	19.88 gain				
1964	2 770 474	3 284 284	1.19	875	1.005	153	3 635 121	4.02	2 955	350 837	10.68 gain				
1965	2 624 363	3 406 457	1.30	955	1.30	962	3 819 255	4.33	3 183	412 798	12.12 gain				
1966	2 817 912	3 650 447	1.30	955	1.004	685	4 148 874	4.13	3 036	498 427	13.65 gain				
1967	2 719 861	3 306 261	1.22	897	1.027	970	4 139 477	4.03	2 962	833 216	25.20 gain				
1968	2 806 124	3 408 548	1.21	889	1.001	027	4 012 009	4.01	2 947	603 461	17.70 gain				
1969	2 675 833	3 396 105	1.27	933	1.27	933	3 754 477	3.90	2 867	358 372	10.55 gain				
1970	2 754 898	3 488 023	1.27	933	1.020	503	3 780 732	3.70	2 719	292 709	8.39 gain				
1971	2 883 969	3 666 277	1.27	933	1.092	571	3 900 990	3.57	2 624	234 713	6.40 gain				
1972	2 846 613	3 541 248	1.24	911	1.063	537	3 886 592	3.65	2 683	345 344	9.75 gain				
1973*	2 956 013	3 492 199	1.18	867	1.065	414	3 980 338	3.74	2 749	488 139	13.98 gain				
1974*	3 072 327	3 669 832	1.19	875	1.123	492	4 204 158	3.74	2 749	534 326	14.56 gain				
1975*	3 001 207	3 581 043	1.19	875	1.128	268	4 196 407	3.72	2 734	615 364	17.18 gain				
1976*	2 783 630	3 263 454	1.17	860	1.084	993	4 361 658	4.02	2 955	1 098 204	33.68 gain				
1977*	2 693 030	3 039 155	1.13	831	1.020	797	4 187 227	4.10	3 014	1 148 072	37.78 gain				
1978*	2 671 798	2 897 906	1.08	797	1.095	674	3 824 323	3.84	2 823	926 417	31.97 gain				
1979*	2 803 166	3 216 228	1.15	843	1.056	652	3 998 131	3.78	2 781	781 903	24.31 gain				
1980*	2 769 495	3 058 785	1.10	812	1.043	241	3 988 611	3.82	2 810	929 826	30.40 gain				
1981*	2 769 112	3 192 402	1.15	847	1.062	925	3 825 050	3.97	2 920	632 648	19.82 gain				

Note: Part of the water in Alamo River from Mexico was used for irrigation in U.S. prior to January 4, 1958,
1/ Based on weekly samples at All-American Canal Station 2963 (East Highline Check) 1958 through 1972
2/ P.P.M. = $735 \times T.A.F.$

Prior to January 1, 1970, all salt concentrations were obtained by evaporation and drying at 105° C.
Subsequent to January, 1970, concentrations were obtained by drying at 180° C.

*Based on weekly samples at All-American Canal below Drop 1

SALINITY - SALTON SEA

Year	Total Dissolved*		Total Dissolved*		Total Dissolved*	
	Solids P.P.m.	t.a.f.	Solids P.P.m.	t.a.f.	Solids P.P.m.	t.a.f.
1956	34	113	46.39		1969	40 009
1957	34	573	47.02		1970	38 583
1958	35	769	48.65		1971	39 150
1959	35	749	48.62		1972	39 013
1960	35	366	48.10		1973	39 186
1961	35	303	48.01		1974	39 183
1962	35	122	47.77		1975	38 973
1963	35	998	48.96		1976	38 528
1964	36	727	49.95		1977	38 461
1965	36	835	50.10		1978	38 141
1966	36	339	49.42		1979	38 423
1967	38	120	51.84		1980	37 616
1968	38	540	52.41		1981	38 451

* Average of total parts per million of samples taken at Bertram Station, Desert Ranch, Sandy Beach, and Salton Sea Beach for each respective year.

** P.P.m. x .00136 = T.A.F.

Note: Sample taken between the Alamo and New Rivers has been excluded due to possible influence of fresh water from rivers on salinity determination of the Sea.

All samples are surface samples taken in May and November of each year.

Parts per million were determined by evaporation, dried at 105° C. prior to January 1, 1970, and dried at 180° C. subsequent to January 1, 1970.

Imperial Irrigation District
Salton Sea
Summary of Observations at Evaporation Stations
1981

Month	Sandy Beach						Devil's Hole						Salt Farm						Meas. Pan Evap. Inches	Avg Pan Inches
	Mean Temp.		Mean Avg.	Total Wind Miles	Rain Total Inches	Pan Evap. Inches	Mean Temp.		Mean Avg.	Total Wind Miles	Rain Total Inches	Pan Evap. Inches	Mean Temp.		Mean Avg.	Total Wind Miles	Rain Total Inches	Pan Evap. Inches		
	Max.	Min.	Temp.	Miles	Inches	Inches	Max.	Min.	Temp.	Miles	Inches	Inches	Max.	Min.	Temp.	Miles	Inches	Inches		
Jan.	70.6	48.1	59.3	138.5	0.45	4.04	68.3	45.3	56.8	692.5	0.48	3.59	70.5	44.6	57.5	1294.4	0.30	4.14	3.92	
Feb.	75.2	46.4	60.8	133.2	0.25	4.31	71.9	41.0	56.5	758.2	0.13	3.67	72.6	42.4	57.5	1420.8	0.57	3.89	3.96	
Mar.	75.4	52.7	64.1	289.8	1.16	7.84	74.7	49.2	61.9	1638.9	1.18	6.40	75.8	49.2	62.5	2156.7	0.19	6.10	6.78	
Apr.	87.7	58.4	73.1	319.5	0.00	10.35	85.1	56.5	70.8	1578.0	0.00	7.73	87.3	58.5	72.9	2389.6	0.00	8.70	8.93	
May	90.2	65.6	77.9	354.5	0.00	12.76	90.3	62.6	76.5	1543.0	0.24	8.67	92.7	62.5	77.6	2553.6	0.09	11.24	10.89	
June	104.1	77.6	90.9	281.4	0.00	15.06	101.4	71.7	86.5	936.7	0.00	10.44	108.3	74.2	91.3	2457.5	0.00	13.89	13.13	
July	103.9	80.4	92.1	291.6	0.00	15.04	102.3	76.0	89.1	883.4	0.00	10.63	107.6	80.6	94.1	2636.1	0.00	14.37	13.35	
Aug.	102.6	80.9	91.7	243.0	1.00	13.02	102.1	75.9	89.0	613.8	0.00	8.88	106.0	82.0	94.0	2306.6	0.00	12.80	11.57	
Sept.	100.4	75.0	87.7	239.8	0.17	12.26	99.6	72.6	86.1	561.8	0.08	8.39	100.6	74.6	87.6	1989.9	0.00	11.05	10.57	
Oct.	85.4	60.7	73.1	270.6	0.00	9.71	84.0	56.8	70.4	729.7	0.00	6.31	84.5	57.2	70.9	2053.8	0.00	8.42	8.15	
Nov.	74.9	51.5	63.2	142.9	0.40	4.92	73.6	43.6	58.6	238.3	0.24	3.14	77.8	48.1	62.9	*	0.18	4.83	4.30	
Dec.	69.3	45.0	57.1	132.4	0.00	3.59	70.2	40.5	55.3	252.9	0.00	3.05	70.5	42.7	56.6	*	0.00	3.88	3.51	
Totals	1039.7	742.3	891.0	2545.6	3.43	112.90	1023.5	691.7	857.5	10427.2	2.35	80.90	1054.2	716.8	885.4	21259.0	1.33	103.31	99.06	
Mean	86.6	61.9	74.3	212.1	--	9.41	85.3	57.6	71.5	868.9	--	6.74	87.9	59.7	73.8	2125.9	--	8.61	8.25	

Note: Tabulated evaporation is that observed in the pan and has not been corrected for pan factor or salinity.

Evaporation measured from 2-foot diameter x 3-foot deep buried screen pan - 1/4-inch mesh screen.

*Anemometer broken

COMPLETE ANALYSES SALTON SEA
(Surface Samples)
1981

Date of Sample		Sandy Beach		Desert Beach		Salton Sea Beach		Bertram Station		Between Alamo & New River Outlets	
		6-1-81	11-2-81	6-1-81	11-2-81	6-1-81	11-2-81	6-1-81	11-2-81	6-1-81	11-2-81
<u>CATIONS</u>											
	Ca	ppm epm % epm	1 022 51.00 8	1 032 51.50 3	1 029 51.33 9	1 042 52.00 8	955 47.67 8	1 042 52.00 8	995 49.67 8	1 102 55.00 9	1 022 51.00 8
	Mg	ppm epm % epm	1 261 103.67 16	1 222 100.50 16	1 184 97.33 16	1 171 96.33 15	1 284 102.67 17	1 171 96.33 15	1 196 98.33 16	1 147 94.33 15	1 220 100.33 16
	Na + K	ppm epm % epm	10 952 476 3	11 039 480.00 76	10 445 454.17 75	11 233 488.45 77	10 712 465.80 75	11 178 486.05 77	10 449 454.35 76	11 166 485.54 76	10 835 471.13 76
<u>ANIONS</u>											
	HCO ₃ +CO ₃	ppm epm % epm	.42 2.32 0	189 3.10 1	135 2.22 1	190 3.12 1	137 2.24 0	192 3.15 1	137 2.24 1	195 3.20 1	142 2.32 1
	Cl	ppm epm % epm	16 492 465.12 74	16 613 468.54 74	15 461 436.05 72	16 734 471.96 74	15 946 449.73 73	16 674 470.25 74	15 461 436.05 72	16 674 470.25 74	16 189 456.57 73
	SO ₄	ppm epm % epm	7 851 163.46 26	7 702 160.36 25	7 904 164.56 27	7 766 161.70 25	7 885 164.17 27	7 732 160.98 25	7 880 164.06 27	7 753 161.42 25	7 856 163.57 26
	Total	epm	1 261.80	1 264.00	1 205.66	1 273.56	1 232.28	1 268.76	1 204.70	1 269.74	1 244.92
	T.D.S. [*] Kx 10 ⁶ at 25°C ph	ppm t.a.f.	37 624 51.17	39 880 54.24	37 392 50.85	39 652 53.93	36 896 50.18	39 472 53.68	37 732 51.32	38 956 52.98	37 964 51.63
			51 360	51 010	51 360	51 010	51 360	51 010	51 360	51 010	51 010
			8.3	7.1	8.4	7.8	8.4	7.4	8.3	7.8	8.3
											7.6

*By evaporation

NET INFLOW TO SALTON SEA
1981

Date	Measured Pan Evaporation		Sea Evaporation	IID Inflow To Sea	Total Inflow To Sea	Difference Inflow-Evap.
	(1)	(2)	(3)	(4)	(5)	(6)
	Inches	Feet	Acre-Feet	Acre-Feet	Acre-Feet	Acre-Feet
Jan.	3.92	0.33	51 000	75 800	80 400	+ 29 400
Feb.	3.96	0.33	51 500	85 000	90 200	+ 38 700
March	6.78	0.57	88 100	112 800	119 700	+ 31 600
April	8.93	0.74	116 100	131 700	139 700	+ 23 600
May	10.89	0.91	141 600	107 700	114 300	- 27 300
June	13.13	1.09	170 700	85 200	90 400	- 80 300
July	13.35	1.11	173 600	96 300	102 200	- 71 400
Aug.	11.57	0.96	150 400	102 200	108 400	- 42 000
Sept.	10.57	0.88	137 400	94 800	100 600	- 36 800
Oct.	8.15	0.68	105 900	86 600	91 900	- 14 000
Nov.	4.30	0.36	55 900	74 000	78 500	+ 22 600
Dec.	3.51	0.29	45 600	68 500	72 700	+ 27 100
TOTAL	99.06	8.25	1 287 800	1 120 600	1 189 000	- 98 800

(3) = (2) x 0.65 (pan factor) x 240,000 Ac. (Sea surface area)

(5) = (4) x 1.061 (estimated factor to include Coachella Area inflow to Sea)

Note: Pan evaporation in feet was carried to 4 decimal places in calculating sea evaporation (Column 3)
Acre-feet rounded to the nearest 100

SALTON SEA EVAPORATION
Screened Evaporation Pans

(Averages, for 3 Weather Stations)

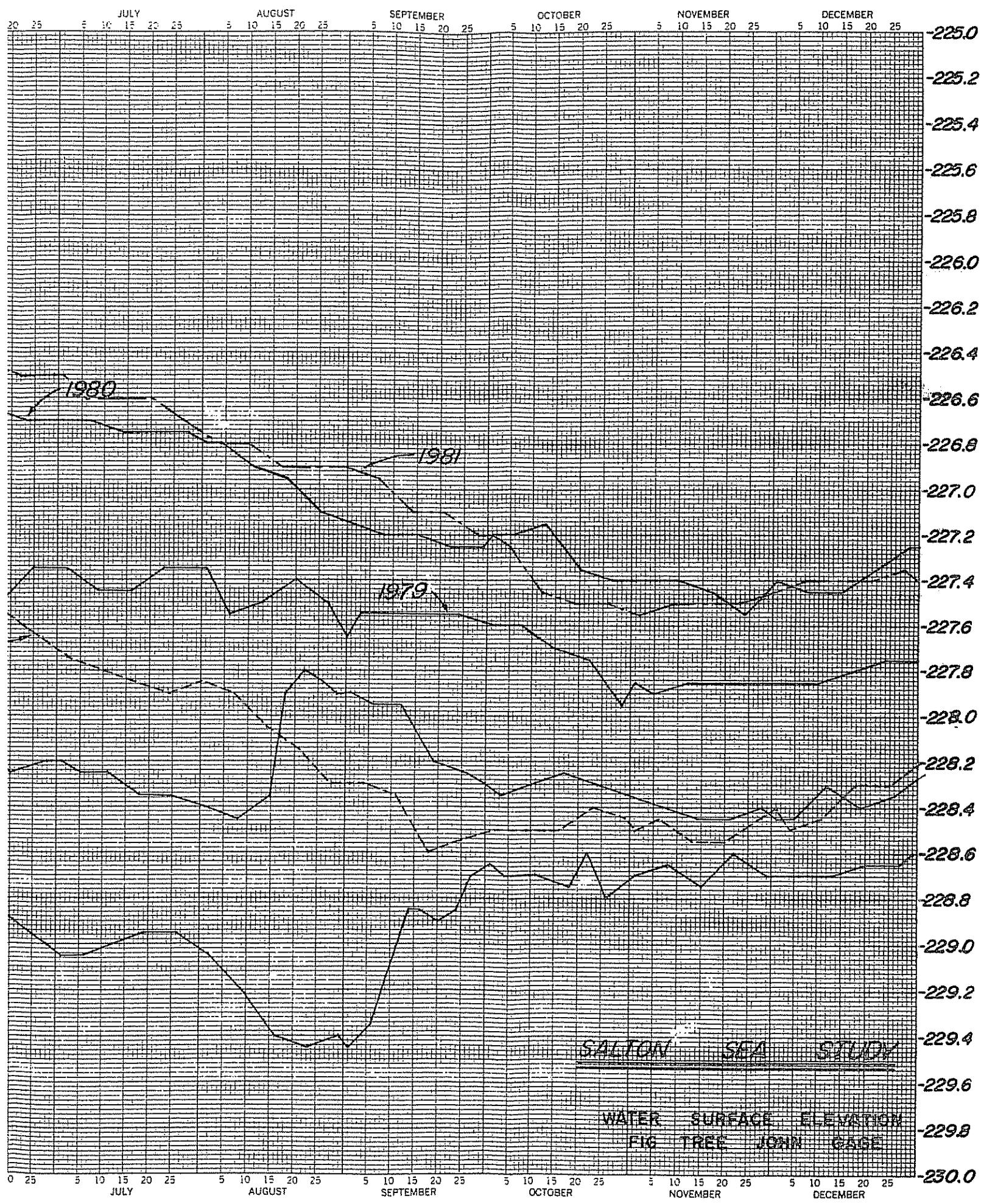
Reported Actual Evaporation in Feet^{1/}

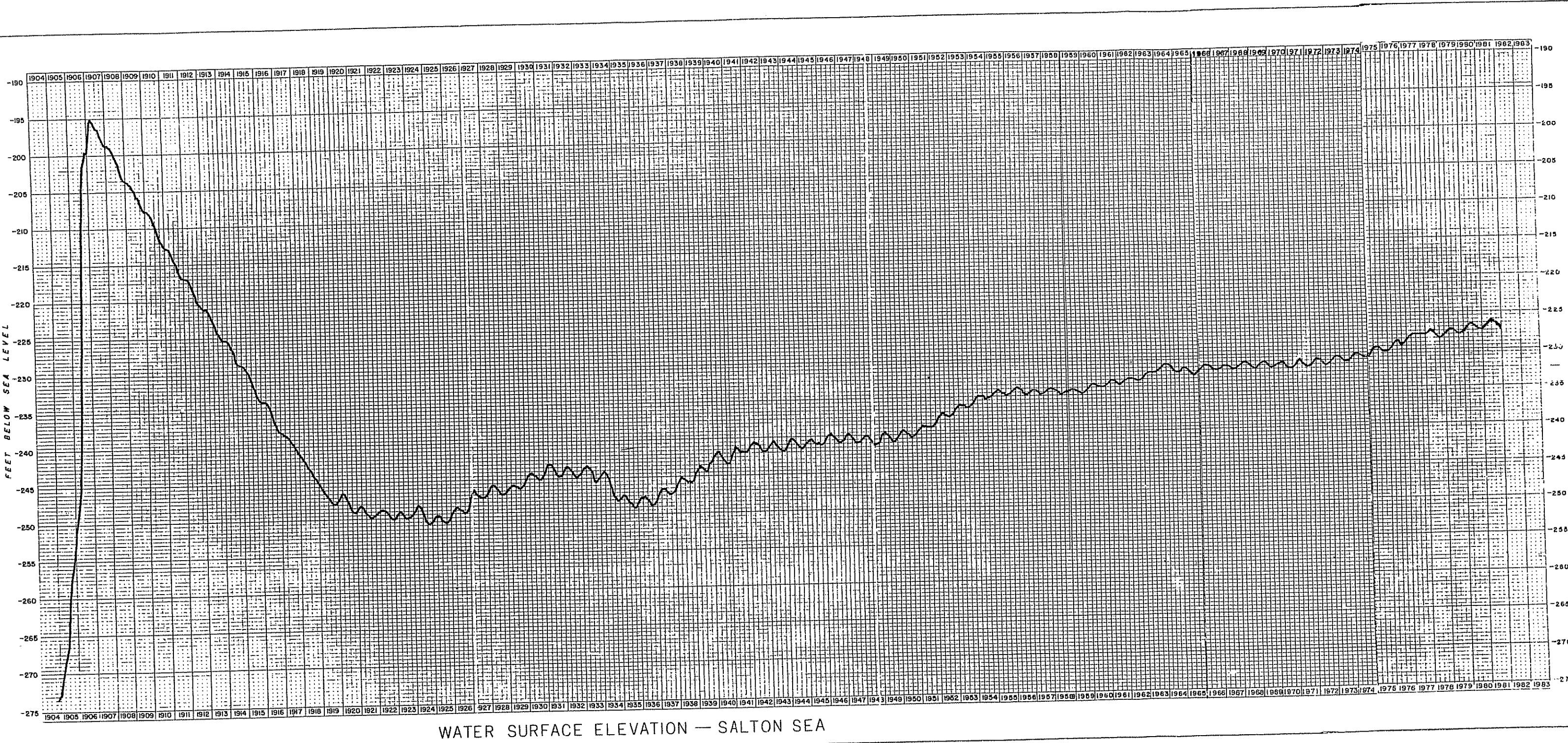
	<u>25-Yr. Avg.</u>	<u>1980</u>	<u>1981</u>	<u>1981 Difference</u>	
	<u>1955-1979</u>			<u>From Avg.</u>	<u>From 1980</u>
January	0.28	0.29	0.33	+ 0.05	+ 0.04
February	0.36	0.40	0.33	- 0.03	- 0.07
March	0.59	0.55	0.57	- 0.02	+ 0.02
April	0.88	0.73	0.74	- 0.14	+ 0.01
May	0.99	1.02	0.91	- 0.08	- 0.11
June	1.07	1.10	1.09	+ 0.02	- 0.01
July	1.08	1.11	1.11	+ 0.03	0.00
August	1.06	1.18	0.96	- 0.10	- 0.22
September	0.87	0.85	0.88	+ 0.01	+ 0.03
October	0.65	0.67	0.68	+ 0.03	+ 0.01
November	0.42	0.45	0.36	- 0.06	- 0.09
December	0.31	0.33	0.29	- 0.02	- 0.04

1/ Observed pan evaporation plus rainfall

ELEVATION OF SALTON SEA IN FEET BELOW SEA LEVEL
 (Near Fig Tree John Spring, Section 23, T. 8 S., R. 9 E.)

<u>Year</u>	<u>Elevation End of Year</u>	<u>Year</u>	<u>Elevation End of Year</u>
1932	244.00	1957	234.45
1933	244.60	1958	234.60
1934	247.80	1959	234.30
1935	248.30	1960	233.75
1936	247.70	1961	233.35
1937	246.40	1962	232.65
1938	244.70	1963	231.20
1939	242.20	1964	231.85
1940	242.50	1965	232.00
1941	241.00	1966	231.95
1942	241.30	1967	231.75
1943	241.05	1968	231.80
1944	240.80	1969	231.95
1945	240.35	1970	231.90
1946	240.45	1971	231.65
1947	240.45	1972	231.30
1948	240.75	1973	231.15
1949	240.20	1974	230.65
1950	239.60	1975	230.05
1951	238.30	1976	228.60
1952	236.60	1977	228.25
1953	235.75	1978	228.20
1954	234.75	1979	227.75
1955	234.35	1980	227.25
1956	234.50	1981	227.40





**1981 SUMMARY OF STRUCTURES INSTALLED, REPLACED,
NEW CONSTRUCTION AND ITEMS OF INTEREST CONCERNING
OPERATION AND MAINTENANCE**

SUMMARY OF STRUCTURES INSTALLED OR REPLACED

	<u>1981</u>	<u>1980</u>
Tile Sumps Installed (Total in system 505)	10	11
*County Road Crossings installed or replaced	10	16
Railroad crossings installed	-	-
State Highway crossings installed	1	1
New deliveries installed	9	17
New checks installed	4	9
New siphons installed	-	1
New control structures installed	6	13
New storm spillways installed	-	1
New maintenance crossings installed	-	2
New spillways installed	-	-
New bridges installed	-	2
New moss pipes installed	-	-
New outlets installed	1	1
New headwalls installed	-	-
New waste pipes installed	3	2
 Deliveries replaced	 15	 17
Checks replaced	6	6
Bridges replaced	1	-
Siphons replaced	4	1
Control structures replaced	1	4
Moss pipes replaced	-	-
Spillways replaced	-	1
Waste pipes replaced	12	16
 Miles of open drains replaced with pipeline and pipeline drains installed	 1.96	 2.13
 Miles of canals concrete lined, landowner's participation and District's continued operation & maintenance	 27.30	 21.25
 Miles of canals concrete lined, total IID cost	 -	 .11

*The County Board of Supervisors and the District Board of Directors entered into a cooperative agreement in 1947, for replacement of canal or drain crossings under County roads with concrete siphons. Under the terms of this agreement the District pays installation costs and the County of Imperial pays material costs.

WATER CONSERVATION

The J. M. Sheldon Water Conservation Reservoir is a 500-acre-foot regulation reservoir, constructed on a 60-acre site in portion of Tracts 214 and 308, 14-13, on the Westside Main Canal. This reservoir receives water from the Westside Main Canal that would normally be surplus and stores it for beneficial use below No. 8 Heading when required. This reservoir was constructed and put into operation in 1977. A total of 19,361 acre-feet was diverted to the reservoir and 18,928 acre-feet was released in 1981.

The Kakoo Singh Reservoir, a 300-acre-foot regulation reservoir, constructed on a 40-acre site adjacent to the East Highline Canal, near the Vail Supply Heading, and above the Nectarine Check to store water from the East Highline Canal and release to the Vail Supply Canal as needed, was constructed and put into operation in 1976. A total of 24,202 acre-feet was diverted to this reservoir and 23,987 acre-feet was released in 1981.

Major Work Authorization 79-2 was approved for the construction of a 300-acre-foot regulating reservoir in portion Tracts 104 and 105, Sections 12 and 13, 14-13, for the storage of water from the Central Main Canal above No. 4 Check and released when needed into Central Main Canal below No. 4 Check. By Resolution 80-80 dated September 9, 1980, this reservoir was named the O. L. "Oscar" Fudge Reservoir. Preliminary work was started in 1980 and continued through 1981 with final completion scheduled for early 1982.

Major Work Authorization 81-W-1 was approved for construction of a 470-acre-foot regulating reservoir in portions Tract 49 and Section 20, 15-15, for the storage of water from the Rositas Canal above Redwood Heading and released when needed into the Rose and Rubber Canals downstream of Meloland Road. By Resolution 56-81 dated September 1, 1981, this reservoir was named the Herman "Red" Sperber Reservoir. Preliminary work was started in 1981 with completion scheduled for 1982.

In accordance with Resolution No. 26-81, May 12, 1981, a Water Conservation Supervisor, a Water Conservation Specialist and two Water Conservation Helpers were employed in the Water Conservation Program. This will permit the Imperial Irrigation District to enter into a two-year irrigation scheduling demonstration program and purchase two neutron probes for determining soil moisture content to provide farmers with data to help them determine adequate irrigation needs. These employees have been trained and licensed to use the neutron probe.

The 21-point water conservation program which became the official water conservation program for the Imperial Irrigation District effective July 1, 1980, continued in 1981. The two most effective items being the water conservation reservoirs and personnel checking surface field discharge. A total of 40,513 heads of water were checked. Of the 40,513 heads checked, there were 6,983 heads wasting 15 percent, or more of the water delivered, and after the second check, there were 2,348 of the orders assessed.

Water level recorders were installed on spill structures of Township, Oat, Oasis, Orient and Occident Canals in conjunction with the proposed sequential or modified irrigation system in accordance with resolution by Water Conservation Advisory Board.

FARM TILE

The landowners installed a total of 865.80 miles of drain tile in 1981, for a total of 27,876.22 miles installed since 1929.

HYDRILLA

Work is continuing with the Imperial Irrigation District, State and County checking to find methods of control of the highly prolific water weed, hydrilla, which was discovered growing in our system in June, 1977.

In accordance with agreement between Imperial Irrigation District and State Department of Food and Agriculture, "Proposal to Conduct Research on Hydrilla Control in the Imperial Valley, California," a Lead, Research Scientist and two Biologists were employed in an effort to control and/or eradicate the hydrilla.

The New River and Wistaria Ponds on the All-American Canal, the Westside Main Heading and the Foxglove Heading on Westside Main Canal were lowered several times during the year for inspection and control.

Hydrilla was discovered in the Central Main Canal at Bowker Road January 30, was isolated and treated. A small growth of hydrilla was found growing in the Central Main Canal above the Briar Canal crossing, was removed by the bantam in June, 1981, and to date has not reappeared.

Magnacide "H" Herbicide (Acrolein Inhibited) was induced into the Woodbine Lateral 3 Canal on July 22, 1981, and Wistaria Laterals 6 and 6-A on July 23, to study its effect on hydrilla. Komeen was induced into Woodbine Lateral 2 Canal August 4. Aquathol K and Komeen with Nalquatic were induced into Wistaria Lateral 6-A August 4, to study the effects on hydrilla. The effects of these treatments were inconclusive.

HYBRID GRASS CARP

Three new canal channels, approximately 100 meters long, have been constructed at Wormwood Lateral 3 Canal. There were three inlet structures from Wormwood Lateral 3 and three spill structures into Westside Main Canal installed.

There were approximately 78 hybrid grass carp put into the Wormwood Lateral 3 Canal June 19, 1981. Approximately 240 hybrid grass carp were put into the second section of the Wormwood Lateral 3 Canal July 16, and approximately 100 hybrid grass carp were put into the first section of Wormwood Lateral 3 Canal in September, 1981.

CONCRETE LINING PROGRAM

There were 27.30 miles of canals concrete lined on a participation basis with the landowner under the Concrete Lining Program during 1981.

WEED CONTROL - MATERIAL
1981

Divisions	Pounds of Chemical				Gallons of Chemical			
	Main Canals	Lateral Canals	Drains	Total	Main Canals	Lateral Canals	Drains	Total
Holtville	1 160	11 147	3 840	16 147	-	267	-	267
El Centro-Calexico	5 784	13 969	4 115	23 868	-	27	-	27
Imperial	5 844	6 583	1 493	13 920	-	136	-	136
Brawley	3 969	21 052	11 857	36 878	-	42	-	42
Westmorland	5 234	14 741	8 323	28 298	-	28	60	88
Calipatria	<u>2 951</u>	<u>20 096</u>	<u>7 137</u>	<u>30 184</u>	-	-	-	-
Total Divisions	24 942	87 588	36 765	149 295	-	500	60	560
All-American	4 339	-	2 776	7 115	3 800	-	-	3 800
Drainage	-	-	17 659	17 659	-	-	-	-
Grand Total	29 281	87 588	57 200	174 069	3 800	500	60	4 360

SUMMARY OF ENGINEERING WORK

	<u>1981</u>	<u>1980</u>
<u>Office</u>		
1. No. Special Jobs	166	218
2. No. Delivery Investigations	72	50
3. No. Tile Drain Construction Investigations	366	196
4. No. Drain & Irrigation Investigations	172	222
5. No. Engineering Data Reports	211	222
6. No. of Power Jobs	3	15
7. No. Miscellaneous Jobs	309	300
Total	1 299	1 223
<u>8. Laboratory</u>		
(a) No. Silt Analyses	134	199
(b) No. Salinity Analyses	116	145
(c) No. Complete Analyses	115	128
Total Item No. 8	365	472
<u>9. Reproduction</u>		
(a) Blueprints - sq. ft.	122 873	114 472
(b) Photostats - sq. ft.	532	646
<u>10. Microfilm</u>		
(a) No. Drawings Microfilmed	5 508	3 954
Total No. Drawings Microfilmed		
May 1, 1975, to December 31, 1981	34 608	29 100
<u>Field</u>		
<u>Miles Staked or Surveyed</u>		
1. Delivery Investigations	16.28	11.07
2. Tile Drain Construction	0.00	0.73
3. Tile Drain Investigations	39.38	65.19
4. Drain and Irrig. Investigations	349.65	227.26
5. Power Surveys	28.56	34.13
Total	433.87	338.38
6. Test Well Readings - Man-Days	8.00	19.00
7. Miscellaneous - Party Hours	1 603.50	1 390.00
8. Inspection - Man-hours	1 021.50	-

SUMMARY OF DRAINAGE ENGINEERING WORK

	<u>1981</u>	<u>1980</u>
1. Number Requests for Tile Drainage Invest.	87	86
Total Acreage for Tile Drainage Invest.	6 610	6 740
2. Number Requests for Tile Drainage Outlets Only	81	77
Total Acreage for Tile Drainage Outlets	6 190	5 560
3. Number Field Checks for Tile Invest. or Designs	104	100
Acreage for Field Checks for Tile Invest. or Designs	6 820	7 020
4. Number Tile Drainage Invest. Pending Acreage of Tile Drainage Invest. Pending	- -	- -
5. Number Soil and Water Table Invest. Acreage of Soil and Water Table Invest.	9 154	9 390
6. Number Profiles of Tile Drainage Invest. Acreage of Profiles of Tile Drain Invest.	65 5 620	56 4 940
7. Number Field Checks of District Drains to Provide Tile Outlets	127	134
8. Number Field Checks for Depth of Tile Outlets	149	151
9. Number Tile Drainage Designs Completed Acreage in Tile Drainage Designs Completed	63 -	51 4 040
10. Number Contacts with Landowner or others in Office	4 545	4 500
11. Number Contacts with Landowner or others in Field	805	840
12. Number Metered Tile Effluents	149	129
13. Number Seepage Invest. of IID Canals	5	1
14. Number Test Wells for Proposed Sumps	7	9
15. Number Special Investigations	28	34
16. Number Field Checks of Tile Machine	180	202

**CONCRETE LINED CANALS, PIPELINE DRAINS,
TILE DRAINS AND DRAINAGE PUMPS**

SUMMARY OF CONCRETE LINED CANALS

Year	Concrete Lined Farm Ditches		Concrete Lining of District Canals		For Private Maintenance		For District Maintenance		Totals	
	Cumulative Length (Miles)		Cumulative Length (Miles)		Length (Miles)		Length (Miles)		Cumulative	
	Length (Miles)	Cumulative Length (Miles)	Length (Miles)	Cumulative Length (Miles)	Length (Miles)	Cumulative Length (Miles)	Length (Miles)	Cumulative Length (Miles)	Annual	Cumulative
1953	42.70	147.70	-	-	-	-	-	-	42.70	147.70
1954	48.20	195.90	-	-	.80	.80	-	-	49.00	196.70
1955	103.00	298.90	1.15	1.15	.50	1.30	1.04.65	104.65	301.35	
1956	125.60	424.50	4.05	5.20	1.66	2.96	131.31	131.31	432.66	
1957	128.90	553.40	4.53	9.73	3.15	6.11	136.58	136.58	569.24	
1958	98.40	651.80	4.97	14.70	3.11	9.22	106.48	106.48	675.72	
1959	115.70	767.50	7.56	22.26	4.07	13.29	127.33	127.33	803.05	
1960	122.10	889.60	4.60	26.86	3.62	16.91	130.32	130.32	933.37	
1961	89.50	979.10	4.41	31.27	10.10	27.01	104.01	104.01	1 037.38	
1962	93.30	1 072.40	1.60	32.87	17.67	44.68	112.57	112.57	1 149.95	
1963	118.30	1 190.70	5.74	38.61	27.54	72.22	151.48	151.48	1 301.53	
1964	110.80	1 301.50	3.53	42.14	50.52	122.74	164.85	164.85	1 466.38	
1965	80.70	1 382.20	.76	42.90	54.35	177.09	135.81	135.81	1 602.19	
1966	72.30	1 545.50	.75	43.65	68.24	245.33	141.29	141.29	1 743.48	
1967	62.90	1 517.40	.40	44.05	60.24	305.57	123.54	123.54	1 867.02	
1968	67.50	1 584.90	1.02	45.07	51.68	357.25	120.20	120.20	1 987.22	
1969	73.00	1 657.90	.27	45.34	56.11	413.36	129.38	129.38	2 116.60	
1970	66.10	1 724.00	.61*	45.95*	38.74*	452.10*	105.45*	105.45*	2 222.05*	
1971	63.10**	1 787.10**	.93	46.88	35.85	487.95	99.88**	99.88**	2 321.93**	
1972	61.20	1 848.30	1.21	48.09	36.20	524.15	98.61	98.61	2 420.54	
1973	71.50	1 919.80	1.11	49.20	29.94	554.09	102.55	102.55	2 523.09	
1974	94.50	2 014.30	1.00	50.20	31.17	585.26	126.67	126.67	2 649.76	
1975	56.80	2 071.10	2.44	52.64	38.39	623.65	97.63	97.63	2 747.39	
1976	68.00	2 139.10	.77	53.41	38.25	661.90	107.02	107.02	2 854.41	
1977	60.30	2 199.40	.30	53.71	34.63	696.53	95.23	95.23	2 949.64	
1978	33.40	2 232.80	-	53.71	19.20	715.73	52.60	52.60	3 002.24	
1979	21.60	2 254.40	-	53.71	21.79	737.52	43.39	43.39	3 045.63	
1980	21.40	2 275.80	-	53.71	21.36	758.88	42.76	42.76	3 088.39	
1981	29.50	2 305.30	-	53.71	27.30	786.18	56.80	56.80	3 145.19	

* Correction 3/22/72

** Correction 1/73

Mileage on District canals shown includes structures

SUMMARY OF CONCRETE LINED CANALS AND FARM DITCHES

Year	Concrete Lined Farm Ditches		Private Maintenance		Concrete Lining of District Canals		District Maintenance	
	Miles	To Date	Miles	To Date	L.O. & IID Participation		Total Miles	Cost to Others
					Miles	To Date		
1953	42.70	147.70	-	-	-	-	-	-
1954	48.20	195.90	-	-	.80	.80	.80	.80
1955	103.00	298.90	1.15	1.15	.50	1.30	.50	1.30
1956	125.60	424.50	4.05	5.20	1.66	2.96	1.66	2.96
1957	128.90	553.40	4.53	9.73	3.15	6.11	3.15	6.11
1958	98.40	651.80	4.97	14.70	3.11	9.22	3.11	9.22
1959	115.70	767.50	7.56	22.26	4.07	13.29	-	4.07
1960	122.10	889.60	4.60	26.86	3.62	16.91	-	3.62
1961	89.50	979.10	4.41	31.27	10.10	27.01	-	10.10
1962	93.30	1 072.40	1.60	32.87	17.67	44.68	-	17.67
1963	118.30	1 190.70	5.74	38.61	27.54	72.22	-	27.54
1964	110.80	1 301.50	3.53	42.14	50.52	122.74	-	50.52
1965	80.70	1 382.20	.76	42.90	52.83	175.57	1.52	54.35
1966	72.30	1 454.50	.75	43.65	67.24	242.81	1.00	2.52
1967	62.90	1 517.40	.40	44.05	60.24	303.05	-	2.52
1968	67.50	1 584.90	1.02	45.07	47.17	350.22	4.51	7.03
1969	73.00	1 657.90	.27	45.34	55.10	405.32	1.01	8.04
1970	66.10	1 724.00	.61*	45.95*	38.74*	444.06*	-	8.04
1971	63.10**	1 787.10	.93	46.88	35.01	479.07	.84	8.88
1972	61.20	1 848.30	1.21	48.09	36.20	515.27	-	8.88
1973	71.50	1 919.80	1.11	49.20	29.94	545.21	-	8.88
1974	94.50	2 014.30	1.00	50.20	31.17	576.38	-	8.88
1975	56.80	2 071.10	2.44	52.64	38.39	614.77	-	8.88
1976	68.00	2 139.10	.77	53.41	38.25	653.02	-	8.88
1977	60.30	2 199.40	.30	53.71	34.63	687.65	-	8.88
1978	33.40	2 232.80	-	53.71	19.20	706.85	-	8.88
1979	21.60	2 254.40	-	53.71	21.79	728.64	-	8.88
1980	21.40	2 275.80	-	53.71	21.36	750.00	-	8.88
1981	29.50	2 305.30	-	53.71	27.30	777.30	-	8.88
								27.30
								786.18

* Correction 3/22/72

** Correction 1/73

Mileage on District canals shown includes structures

PIPELINE DRAIN INSTALLATIONS
(District O & M)

<u>Year</u>	<u>Miles</u>	<u>Cumulative Length</u>
1962	1.38	22.51
1963	9.74	32.25
1964	5.38	37.63
1965	4.92	42.55
1966	13.64	56.19
1967	7.11	63.30
1968	6.24	69.54
1969	7.37	76.91
1970	3.69	80.06*
1971	2.16	82.22
1972	5.54**	87.76**
1973	1.83	89.59
1974	5.31	94.90
1975	7.97***	102.87***
1976	1.11	103.98
1977	1.36	105.34
1978	.91	106.25
1979	1.12	107.37
1980	2.13	109.50
1981	1.96	111.46

*0.54 of a mile abandoned

**0.48 of a mile is in the total miles, but no additional miles in records as parallel drain

***0.27 of a mile is in the total miles, but no additional miles in records as parallel drain

TILE INSTALLED IN IMPERIAL IRRIGATION DISTRICT

<u>Year</u>	<u>Miles of Tile Installed</u>	<u>Cumulative Total Miles Tile Installed</u>	<u>No. Acres Tiled</u>	<u>Cumulative Total No. Acres Tiled</u>
1929 to 1939, Inclusive				
Cumulative Total Miles Installed - 332.77				
Total Acres Prior to 1940 ---12,220				
1940	66.84	399.61	4 040	16 240
1941	46.08	445.69	2 880	19 120
1942	37.15	482.84	2 040	21 160
1943	53.24	536.08	3 960	25 120
1944	60.00	596.08	1 880	27 000
1945	55.00	651.08	3 240	30 240
1946	133.25	784.33	5 480	35 720
1947	325.00	1 109.33	17 920	53 640
1948	393.80	1 503.13	17 220	70 860
1949	455.62	1 958.75	21 670	92 530
1950	458.00	2 416.75	22 610	115 140
1951	603.10	3 019.85	22 665	137 805
1952	709.54	3 729.39	23 345	161 150
1953	512.19	4 241.58	16 000	177 150
1954	491.12	4 732.70	14 960	192 110
1955	526.92	5 259.62	15 160	207 270
1956	519.36	5 778.98	13 290	220 560
1957	560.97	6 339.95	12 200	232 760
1958	490.88	6 830.83	10 690	243 450
1959	546.54	7 377.37	9 550	253 000
1960	794.05	8 171.42	15 713	268 713
1961	857.51	9 028.93	17 921	286 634
1962	611.01	9 639.94	11 485	298 119
1963	766.02	10 405.96	10 129	308 248
1964	993.97	11 399.93	12 707	320 955
1965	734.52	12 134.45	7 958	328 913
1966	527.38	12 661.83	6 634	335 547
1967	634.00	13 295.83	6 419	341 966
1968	754.33	14 050.16	6 046	348 012
1969	808.64	14 858.80	6 010	354 022
1970	1 036.61	15 895.41	8 230	362 252
1971	919.34	16 814.75	7 552	369 804
1972	1 019.40	17 834.15	7 311	377 115
1973	1 154.35	18 988.50	8 031	385 146
1974	1 191.96*	20 180.46*	3 734	388 880
1975	1 223.22	21 403.68	6 258	395 138
1976	1 530.67	22 934.35	7 941	403 079
1977	822.31	23 756.66	3 441	406 520
1978	958.32	24 714.98	5 719	412 239
1979	1 234.11	25 949.10	6 636	418 875
1980	1 061.32	27 010.42	3 873	422 748
1981	865.80	27 876.22	4 839	427 587

*Correction 6/1/75

TILE DRAINAGE SUMPS

Breakdown of Cost of O & M

(Dollars)

Salton Sea Sumps

Year	No. of Sumps		Annual Cost for All Sumps						Average Annual Cost Per Sump						Total Per Sump
	Total No.	Weighted Average	Labor	Material	Equipment	Total Maint.	Power	Total Cost	Labor	Material	Equip.	Total Maint.	Power	Total Maint.	Power
1957	15	14	\$ 201	\$ 119	\$ 23	\$ 343	\$1 796	\$2 139	\$ 14	\$ 9	\$ 2	\$ 25	\$128	\$153	
1958	19	18	514	162	71	747	2 232	2 979	29	9	4	42	124	166	
1959	22	20	897	211	518	1 626	2 629	4 255	45	10	26	81	132	213	
1960	22	22	706	220	429	1 355	2 332	3 687	32	10	20	62	106	168	
1961	25	24	829	327	598	1 754	3 049	4 803	34	14	25	73	127	200	
1962	25	25	752	3 063	530	4 345	3 386	7 731	30	123	21	174	135	309	
1963	27	26	1 381	3 509	917	5 807	4 487	10 294	53	135	35	223	173	396	
1964	29	29	1 026	1 101	941	3 068	3 908	6 976	35	38	33	106	135	241	
1965	29	29	1 102	951	887	2 940	3 179	6 119	38	33	30	101	110	211	
1966	30	30	1 361	2 880	995	5 236	2 883	8 119	45	96	33	174	96	270	
1967	30	30	991	3 034	823	4 848	2 644	7 492	33	102	27	162	83	245	
1968	30	30	1 407	5 740	1 079	8 226	2 958	11 184	47	191	36	274	99	373	
1969	30	30	1 815	4 759	1 529	8 103	3 325	11 428	60	159	51	270	111	381	
1970	30	30	2 008	2 030	873	4 911	3 243	8 154	67	68	29	164	108	272	
1971	30	30	3 488	10 660	1 529	15 677	3 551	19 228	116	356	51	523	118	641	
1972	30	30	2 787	7 611	1 209	11 607	3 702	15 309	93	254	40	387	123	510	
1973	30	30	1 945	739	943	3 627	3 941	7 568	65	25	31	121	131	252	
1974	30	30	1 822	195	1 541	3 558	5 087	8 645	61	6	51	118	170	288	
1975	30	30	2 264	576	2 069	4 909	6 462	11 371	76	19	69	164	215	379	
1976	30	30	2 728	860	2 664	6 252	6 829	13 081	91	28	89	208	228	436	
1977	30	30	2 556	1 141	2 944	6 641	8 476	15 117	85	38	98	221	283	504	
1978	30	30	3 298	3 341	2 748	9 387	10 542	19 929	110	111	92	313	351	664	
1979	30	30	3 409	3 141	1 026	7 576	13 008	20 584	114	105	34	253	433	686	
1980	30	30	7 863	7 797	2 444	18 104	21 267	39 371	262	260	81	603	709	1 312	
1981	30	30	8 180	6 122	1 524	15 826	15 063	30 889	273	204	51	528	502	1 030	

TILE DRAINAGE SUMPS

Breakdown of Cost of O & M

(Dollars)

Standard Sumps

Year	No. of Sumps		Annual Cost for All Sumps							Average Annual Cost Per Sump						
	Total No.	Weighted Average	Labor	Material	Equipment	Total Maint.	Power	Total Cost	Labor	Material	Equip.	Total Maint.	Power	Total Cost	Total Cost Per Sump	
1957	85	82	\$ 3 805	\$ 1 586	\$ 1 499	\$ 6 890	\$ 6 448	\$13 338	\$47	\$19	\$18	\$84	\$79	\$163		
1958	96	90	5 210	2 408	1 991	9 609	6 846	16 455	58	27	22	107	76	183		
1959	100	98	4 973	2 242	2 489	9 704	8 691	18 395	51	23	25	99	89	188		
1960	126	112	4 909	1 187	1 476	7 572	9 188	16 760	44	11	13	68	82	150		
1961	148	138	6 095	1 812	2 346	10 253	12 854	23 107	44	13	17	74	93	167		
1962	170	156	6 728	3 243	1 623	11 594	15 971	27 565	43	21	10	74	102	176		
1963	191	179	8 102	6 184	2 131	16 417	21 272	37 689	45	35	12	92	119	211		
1964	221	205	9 451	6 728	2 320	18 499	17 720	36 219	46	33	11	90	87	177		
1965	241	231	13 223	11 290	2 958	27 471	16 349	43 820	57	49	13	119	71	190		
1966	263	249	14 852	13 449	3 153	31 454	15 569	47 023	59	54	13	126	63	189		
1967	275	267	16 708	12 588	4 279	33 575	15 391	48 966	63	47	16	126	58	184		
1968	306	287	15 222	10 531	3 554	29 307	18 188	47 495	53	37	12	102	63	165		
1969	328	316	22 051	12 893	4 976	39 920	19 178	59 098	70	41	15	126	61	187		
1970	356	342	25 868	17 147	6 323	49 338	20 976	70 314	76	50	18	144	61	205		
1971	369	360	24 462	30 767	5 667	60 896	22 123	83 019	68	85	16	169	62	231		
1972	390	378	29 958	28 352	7 072	65 382	23 485	88 867	79	75	19	173	62	235		
1973	405	394	25 016	6 374	5 477	36 867	25 820	62 687	63	16	14	93	66	159		
1974	419	412	32 387	15 457	6 273	54 117	34 692	88 809	79	37	15	131	84	215		
1975	432	424	36 129	15 895	7 173	59 197	43 936	103 133	85	37	17	139	104	243		
1976	434	432	39 895	18 890	8 187	66 972	48 485	115 457	92	44	19	155	112	267		
1977	438	436	47 634	30 443	8 694	86 771	43 741	130 512	109	70	20	199	100	299		
1978	442	439	55 963	24 382	8 720	89 065	55 304	144 369	127	56	20	203	126	329		
1979	452	447	74 408	27 249	9 786	111 443	73 905	185 348	166	61	22	249	165	414		
1980	464	457	78 078	43 794	10 413	132 285	88 721	221 006	170	96	23	289	194	483		
1981	473	467	105 054	56 371	13 887	175 312	89 202	264 514	225	121	30	375	191	566		